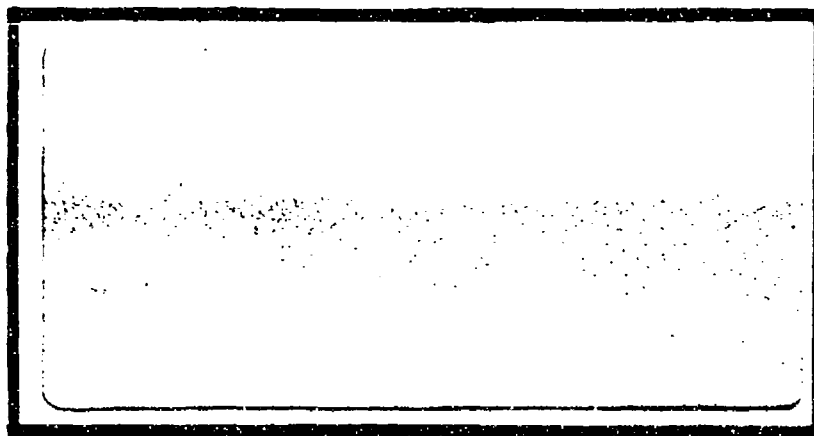
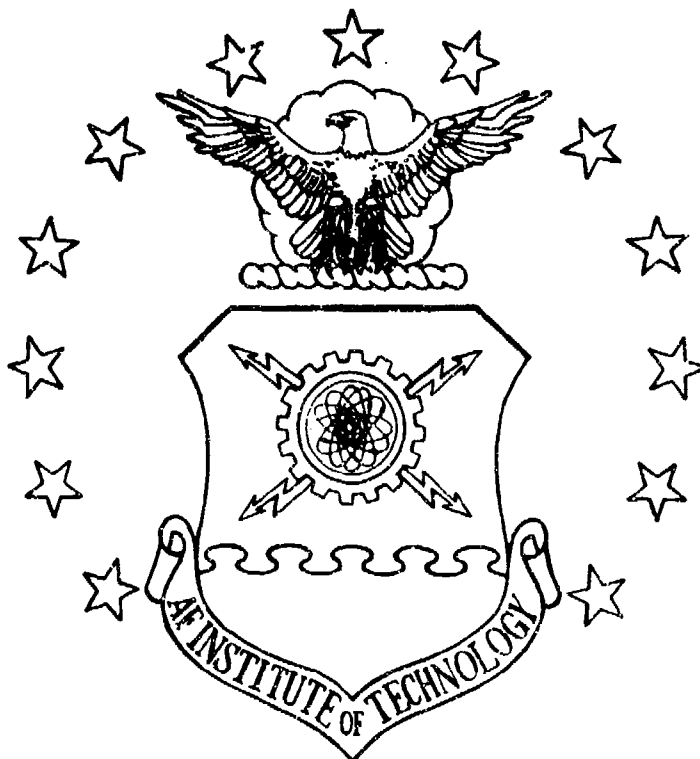


AD-A174 578



DTIC FILE COPY

This document has been approved
for public release and sale; its
distribution is unlimited.

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY

AIR FORCE INSTITUTE OF TECHNOLOGY

DTIC
ELECTE

DEC 2 1986

A

Wright-Patterson Air Force Base, Ohio

86 12 02 143

AFIT/GSM/LSA/86

AN INVESTIGATION OF THE HEALTH
PRACTICES, ATTITUDES, AND PERCEPTIONS
OF USAF MILITARY AND CIVILIAN
PERSONNEL

THESIS

Russell A. Vogel
Captain, USAF

AFIT/GSM/LSA/86S-20

DTIC
S ELECTED
DEC 2 1986
A

Approved for public release; distribution unlimited

The contents of the document are technically accurate, and no sensitive items, detrimental ideas, or deleterious information is contained therein. Furthermore, the views expressed in the document are those of the author and do not necessarily reflect the views of the School of Systems and Logistics, the Air University, the United States Air Force, or the Department of Defense.



Accession For	
NTIS GRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By _____	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

AFIT/GSM/LSA/86S-20

AN INVESTIGATION OF THE HEALTH PRACTICES, ATTITUDES, AND
PERCEPTIONS OF USAF MILITARY AND CIVILIAN PERSONNEL

THESIS

Presented to the Faculty of the School of Systems and
Logistics of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Systems Management

Russell A. Vogel, B.B.A.

Captain, USAF

September 1986

Approved for public release; distribution unlimited

Acknowledgements

Many people were instrumental in making this research project possible. To all of them I am greatly indebted. First, my thesis advisor, Dr. William Mauer, who provided the guidance and support necessary to complete this study--without his help I might still be staring at the wall in despair. Also, Colonel (Dr.) Harry Wetzler, who provided very valuable ideas and suggestions on the overall direction of this effort. Next, I would like to thank the staff of the Surgeon General's Office at Headquarters Air Force Logistics Command (HQ AFLC), especially Major (Dr.) William Gould and Major Elaine Laub, for all their assistance and cooperation on this project. Additional thanks go to all the personnel of HQ AFLC who took the time to participate in the survey. Without their input, this study would not have been possible. Finally, I extend endless thanks to my wife, Debbie, for her love, assistance and understanding throughout my stay at AFIT.

Table of Contents

	Page
Acknowledgements	ii
List of Tables	vi
Abstract	viii
I. Introduction.....	1
General Issue.....	1
Specific Problem Statement.....	4
Scope.....	6
Research Questions.....	6
Summary.....	7
II. Literature Review.....	9
Introduction.....	9
Prevention.....	9
Health Practices Research.....	11
Air Force Health Practices Research..	13
Health Promotion.....	22
Corporate Health Promotion Programs..	23
Corporate Health Promotions Research.	24
Government Health Promotions Research	26
Summary.....	27
III. Research Design and Methodology.....	28
Introduction.....	28
Justification.....	28
Target Population.....	29
Sampling Plan.....	30
Data Collection Instrument.....	31
Questionnaire Structure.....	32
Validity and Reliability of the Survey	
Instrument.....	34
Analysis Plan.....	35
Measurement Scales.....	36
Assumptions and Limitations.....	37
IV. Results and Analysis.....	38
Introduction.....	38
Survey Response Summary.....	38
Demographic Characteristics.....	42
Respondents' Ranks and Grades.....	42

	Page
Respondents' Sex.....	44
Respondents' Marital Status.....	45
Respondents' Ages.....	46
Respondents' Length of Service/ Employment.....	47
Respondents' Education Level.....	48
Analysis and Results of Research Questions	49
Research Question One.....	49
Smoking Status.....	49
Strenuous Exercise.....	54
Body Weight.....	57
Hours of Sleep.....	61
Eating Breakfast.....	64
Consumption of Alcoholic Beverages.....	67
Research Question Two.....	74
Research Question Three.....	75
Research Question Four.....	77
Research Question Five.....	80
Analysis.....	80
Discussion.....	82
Research Question Six.....	87
Summary.....	91
V. Conclusions and Recommendations.....	93
Introduction.....	93
Research Question One.....	94
Smoking.....	94
Strenuous Exercise.....	94
Body Weight.....	94
Hours of Sleep.....	95
Eating Breakfast.....	95
Alcohol Consumption.....	95
Research Question Two.....	95
Research Question Three.....	96
Research Question Four.....	96
Research Question Five.....	98
Research Question Six.....	99
Recommendations for Further Research.....	100
Conclusion.....	101
Appendix A: HQ AFLC Health Survey	104
Appendix B: Supplemental Health Practices	115
Appendix C: Selected Comments and Suggestions Provided by Respondents	124

	Page
Appendix D: Frequency Tables to Selected Survey	
Questions.....	132
Bibliography.....	143
Vita.....	147

List of Tables

Table		Page
2.1	Hours of Sleep in the US Air Force and United States: 1977.....	16
2.2	Eating Breakfast in the US Air Force and United States: 1977.....	17
2.3	Physical Activity in the US Air Force and United States: 1977.....	18
2.4	Alcoholic Consumption in the US Air Force and United States: 1977.....	19
2.5	Smoking Status in the US Air Force and United States: 1977.....	20
2.6	Body Weight in the US Air Force and United States: 1977.....	21
4.1	Survey Response Rate by Civilian Grade.....	39
4.2	Survey Response Rate by Military Rank.....	40
4.3	Survey Response Rate by Sex.....	41
4.4	Respondents' Ranks and Grades.....	43
4.5	Respondents' Sex.....	44
4.6	Respondents' Marital Status.....	45
4.7	Respondents' Ages.....	46
4.8	Respondents' Years of Service/Employment.....	47
4.9	Respondents' Education Level.....	48
4.10	Respondents' Cigarette Smoking Status.....	51
4.11	Crosstabulations of Smoking Status by Subgroup by Sex, Age and Education Level.....	52
4.12	Respondents' Cigar or Pipe Smoking Status.....	53
4.13	Respondents' Smokeless Tobacco Use.....	53

Table		Page
4.14	Respondents' Strenuous Physical Activity.....	55
4.15	Crosstabulations of Strenuous Physical Activity by Subgroup by Sex, Age and Education Level....	56
4.16	Respondents' Present Weight versus Ideal Weight	59
4.17	Crosstabulations of Present versus Ideal Weight by Subgroup by Sex, Age and Education Level....	60
4.18	Respondents' Hours of Sleep.....	62
4.19	Crosstabulations of Hours of Sleep by Subgroup by Sex, Age and Education Level.....	63
4.20	Number of Times per Week Respondents Eat Breakfast.....	65
4.21	Crosstabulations of Eating Breakfast by Subgroup by Sex, Age and Education Level.....	66
4.22	Respondents' Frequency of Consumption of Alcoholic Beverages.....	69
4.23	Crosstabulations of Alcohol Consumption by Subgroup by Sex, Age and Education Level.....	70
4.24	Respondents' Drinks per Sitting of Alcoholic Beverages.....	72
4.25	Crosstabulations of Drinks per Sitting by Subgroup by Sex, Age and Education Level.....	73
4.26	Respondents' Main Source of Health Related Information.....	76
4.27	Mode and Median Responses and Ratings to Attitude Questions.....	84
4.28	"Yes" Responses to Questions 61-70.....	92

Abstract

This investigation examined the health practices, attitudes and perceptions of Headquarters Air Force Logistics Command military and civilian personnel. Six health practices were studied and comparisons between each group were made. The specific health practices included 1) smoking, 2) eating breakfast, 3) body weight, 4) alcohol consumption, 5) strenuous physical activity and 6) hours of sleep. In addition, employees' attitudes and perceptions concerning Air Force health promotion efforts and activities were measured and reported. Demographic variables of HQ AFLC personnel were also collected and presented. Data collection was accomplished via a survey questionnaire. Questions on health practices, attitudes and perceptions were derived from the 1977 U.S. Air Force Health Survey and a draft U.S. Air Force Health Promotion Program questionnaire.

Results of the study concerning health practices indicate fewer military personnel smoke cigarettes than civilian, military members eat breakfast less often than civilians, over one half of the personnel considered themselves overweight with military members being closer to their ideal weight, alcohol consumption among military members was more frequent but less intense than civilian personnel, military members get more strenuous physical exercise than civilians and civilians get slightly more

sleep than military.

Results of perceptions and attitudes concerning health promotion in the Air Force indicate that, overall, employees are slightly less than satisfied with Air Force health promotion efforts and suggest more emphasis be placed on health promotion to civilian personnel and more rigorous physical fitness standards be enforced on military members.

Very favorable support of a public health intervention facility, known as the wellness center, was expressed by both military and civilian personnel. Information on several work related health problems, such as stress and lower back pain, were of most interest to employees as was the desire to have their fitness level tested.

AN INVESTIGATION OF THE HEALTH PRACTICES, ATTITUDES, AND PERCEPTIONS OF USAF MILITARY AND CIVILIAN PERSONNEL

I. Introduction

General Issue

In today's sophisticated, specialized workplace, people are still the most important resource. To remain productive and useful, employees must be healthy. Advances in medical care and medicine, along with improvements in sanitation, housing, nutrition and immunization have contributed significantly to increasing individuals health. However, much of the responsibility for the health of a person lies not with the medical profession providing a cure for life threatening diseases but with the individual becoming more aware of the impact certain personal habits have on health. In 1982, the Honorable Richard Schweiker, then Secretary of Health and Human Services, stated that "today we have twice as much power to influence our longevity through prevention than even medical advances can offer" (26:197). Research performed by American experts in the health profession area indicated that at least fifty percent of the U.S. mortality in 1976 was due to unhealthy behavior or lifestyle (7:9). The 1979 U.S. Surgeon General's Report on Health promotion and Disease Prevention identified six areas that, if fol-

lowed by individuals in the American society, could help decrease the leading causes of morbidity and mortality in the U.S. and improve the overall health of the nation. The measures cited were:

1. elimination of cigarette smoking;
2. reduction of alcohol misuse;
3. moderate dietary changes to reduce intake of excess calories, fat, salt, and sugar;
4. moderate exercise;
5. periodic screening (at intervals determined by age, and sex) for major disorders such as high blood pressure and certain cancers and;
6. adherence to speed laws and use of seat belts [7:10].

The Department of Defense (DOD) strongly supports the initiatives proposed in the 1979 Surgeon General's Report. In March 1986, the Honorable Caspar Weinberger, Secretary of Defense, approved a DOD directive aimed at improving the health and readiness of the military through development of a DOD wide, long-term health promotion and education program (6). The directive focuses heavily on smoking by DOD employees and includes other health related issues such as physical fitness, nutrition, stress management, alcohol and drug abuse and early detection of hypertension. The official DOD policy as contained in DOD Directive 1010.10, Health Promotion, is to:

1. Encourage military personnel, retirees, their families and civilian employees to live healthy lives through an integrated, coordinated and comprehensive health promotion program.

2. Foster an environment that enhances the development of healthful lifestyles and high unit performance.

3. Recognize the right of individuals working or visiting in DOD occupied buildings to an environment reasonably free of contaminants.

4. Disallow DOD Components' participation with manufacturers or distributors of alcohol or tobacco products in promotional programs, activities, or contests aimed primarily at DOD personnel [6:2].

Despite the emphasis contained in the recent directive, health promotion within the Air Force has existed for several years and currently is managed by several organizational units within the Air Force Medical Service and the line of the Air Force. The mission of the program is to provide an environment whereby individuals can acquire skills and knowledge that promote and encourage healthy lifestyle behaviors (17:1). Education of healthy habits to Air Force members takes place primarily through media campaigns such as published articles in base or local newspapers and magazines, health-related activities such as family runs and volksmarches, distribution of posters, articles, brochures and pamphlets at workplaces and medical centers, and briefings and presentations of health related information. These activities are developed, coordinated and performed by the personnel of 1) the Surgeon General's Clinical Health Promotion Program Office and 2) different line organizations having overall responsibility for different segments of the Air Force Health Promotion Program with

assistance from Health Promotion Program Managers at Major Command headquarters and Health Promotion Coordinators at each Air Force medical facility.

The Air Force Health Promotion Program is comprised of several individual programs covering alcohol and drug abuse, exercise and fitness, weight management, smoking control and cessation, nutrition, stress management and hypertension control. Enforcement and provisioning of services for each separate program is normally the responsibility of the senior installation commander. The commander receives assistance from staff and/or support organizations/agencies, such as Social Actions; Morale, Welfare, and Recreation; Medical and Dental Services; etc., for implementation of each program (15).

Specific Problem Statement

The Air Force has had an official Health Education/Health Promotion Program since April 1977, when the Health Education Division was formed. In its nine years of existence, the USAF Health Promotion Program has had an intended impact on the lifestyles of the military and civilian workforce. The major question to be investigated is "did the intended impact in fact result?" To begin to answer that question, it is necessary to determine the health practices of Air Force military and civilian employees and how they compare with each other and with the health practices of the rest of the nation.

In the past, research on the health practices, attitudes and perceptions of USAF personnel has focused on the military members only. No systematic research on these health areas of Air Force civilians has been performed. Today, there are over 263,000 civilian members in the Air Force (29:182), and they provide important and vital functions at virtually all levels and positions. The health of this segment of the Air Force workforce is a growing concern of senior Air Force managers as indicated by recent Air Force health promotion efforts aimed at the entire Air Force community, which includes active duty, reserve, and retired military, dependents and most importantly civilians.

The purpose of the this research is to assess the health lifestyles, attitudes and perceptions of both the military and civilian personnel in the Air Force and to investigate the role health promotion plays in these employees' lifestyles. The information gained from this research should be helpful to 1) managers who are concerned about the health and wellness of their employees and 2) managers who are attempting to improve the health promotion efforts at both the national and local level. By learning more about the health lifestyles, attitudes and perceptions of the military and civilian members, managers at the local level can make fine-tuning adjustments to the base health promotion efforts by emphasizing and encouraging certain healthy practices that are found to be lacking in the target group; e.g., the need for regular physical exercise by those

employees with sedentary jobs. An improved Air Force Health Promotion Program could result in healthier, more motivated and productive employees, thus possibly saving the Air Force millions of dollars normally lost due to illness and sub-standard productivity.

Scope

This study is limited to the health practices, attitudes and perceptions of Air Force personnel. Although the current Air Force health promotion efforts are directed at the entire Air Force community--active duty, guard and reserve military personnel, cadets, retirees, their families, and civilian employees--only active duty military and civilian personnel will be studied.

The health practices covered in this study will focus primarily on six physiological areas to include exercise, eating habits, sleeping habits, body weight, smoking habits and consumption of alcoholic beverages. Environmental awareness, with respect to the use of seat belts, will be the only category in the psychological health practices area to be covered in this study. In addition to the investigation of psychological and physiological health practices of military and civilian employees, this study will investigate the attitudes and perceptions of employees concerning health and health promotion-related topics.

Research Questions

This study addresses six research questions relevant to

health and health promotion within the Air Force.

Research Question One. What are the current health practices of Air Force military and civilian personnel and how do they compare with each other?

Research Question Two. What is the level of awareness of health promotion efforts among Air Force personnel?

Research Question Three. How do Air Force employees receive health promotion/health-related information?

Research Question Four. What is the perceived usefulness of Air Force health promotion efforts by military and civilian personnel?

Research Question Five. What are Air Force employees' attitudes towards health as it relates to work?

Research Question Six. What health promotion activities/efforts are Air Force employees interested in attending/participating in?

Summary

Chapter I introduced health promotion in the DOD and provided an overview of the purpose for this study. Chapter II will present a review of the research covering health practices and health promotion, including descriptions of current health promotion programs. Chapter III discusses the research design and the methodology to be used in

gathering information to answer the research questions.

Chapter IV discusses the analysis and findings of the collected data and Chapter V will provide a summary with conclusions and recommendations.

II. Literature Review

Introduction

Chapter II presents a review of the literature pertinent to health practices and health promotion. The first section describes the evolution and emphasis on prevention activities and measures. It is followed by a review in section two of the research on several different health practices which, if followed, are considered to be preventive measures against morbidity and mortality. Also presented is the specific research covering Air Force members' health practices. The final section describes health promotion and reviews the research conducted on the effectiveness of health promotion programs and activities.

Prevention

Americans are healthier and living longer today than ever before due in large part to prevention of disease and illness. Within the last century significant advances in health and longevity have resulted through prevention of disease. In 1900, infectious diseases such as influenza, pneumonia, diphtheria, and tuberculosis were the leading causes of death. Since that time, improvements in sanitation, the development of vaccines and mass immunizations, better nutrition, and the pasteurization of milk have been chiefly responsible for combating these diseases with a resulting increase in life expectancy and reduction in

infant mortality. The use of these treatment and preventive measures tremendously reduced death by major acute diseases to a rate of 30 for every 100,000 people in 1979 compared to 580 for every 100,000 people in 1900. However, during this time when death from these major infectious diseases decreased, the proportion of deaths due to major chronic diseases, such as heart and kidney disease, cancer and stroke, increased. While the primary treatment for many acute diseases relied on finding a cure that was administered once a person was afflicted, other treatments strived to prevent the onset of the disease; e.g., through use of a vaccine for smallpox and polio (7:vii-viii).

Due to the insidious nature of today's chronic diseases and the wealth of medical information on their origins, prevention of these major killers and crippers before they occur is recognized as an effective strategy for combating their high rate of incidence. Prevention in these terms is today viewed as maintenance and/or adoption of healthful lifestyle habits. In 1979, Joseph Califano, then Secretary of Health, Education and Welfare, underscored the need for more emphasis on preventive measures against these modern diseases and other health risks by stating:

We are killing ourselves by our own careless habits. We are killing ourselves by carelessly polluting the environment. We are killing ourselves by permitting harmful social conditions to persist--conditions like poverty, hunger and ignorance--which destroy health, especially for infants and children [7:viii].

He went on to point out that individuals can do more for

their own health and well-being than any doctor, hospital, drug, or exotic medical device, through greater awareness of health hazards and through adoption of healthful lifestyle habits.

Disease prevention and health promotion are receiving increased interest today as more attention is being paid to exercise, nutrition, environmental health and occupational safety. The knowledge gained from several research efforts in health practices and health promotion is largely responsible for this increased interest.

Health Practices Research

The most renowned study of health practices was reported in 1972 by Belloc and Breslow (2). Their research showed a strong relationship between seven health habits and the physical health status of a representative sample of the U.S. adult population. The data used in the study was collected in 1965 by the Human Population Laboratory (HPL) of Alameda County, California. The seven health habits investigated included adequate rest, regular physical activity, no smoking, moderate or no use of alcohol, maintaining proper weight, eating breakfast and no snacking. They found that adherence to these good health practices was associated with positive health. They also found the relationship of the practices was cumulative whereby those who followed all the good practices were in better health, even though older in some cases, than those who did

not. Furthermore, they found the association between these seven health practices and physical health status was independent of age, sex, and income level.

In 1973, Belloc reported a 5 1/2 year follow-up study of the original sample used in the HPL's 1965 research effort which revealed a strong relationship between the same seven health practices and longevity (1). The study showed that a 45 year old man who followed six or seven of the good health habits could be expected to live 11 years longer than one who did not. Similar results were found for women, where the expected difference was 7 years.

Using the original 1965 HPL sample population again, Breslow and Enstrom reported findings of a 9 1/2 year longitudinal study which supported Belloc's research on the relationship between health practices and mortality (4). Data on 4864 of the original 6928 respondents in the 1965 study were analyzed and revealed that the higher mortality throughout the 9 1/2 years among individuals with poor health habits was consistent with the belief that poor health habits tend to reduce life expectancy.

Part of Breslow and Enstrom's research focused on the association between socioeconomic status and health. Using education as a measure of socioeconomic status they found a positive association between years of schooling and good health practices for the total sample. However, this relationship did not hold true for each and every category of health practice groups in the study. For example, those

individuals with more than 12 years of schooling who practiced 4 or 5 healthful habits were in worse health than those with just 12 years of schooling.

Wiley and Camacho reported in 1980 an association between future health and five of the health practices identified by Belloc and Breslow (38). Cigarette smoking, alcohol consumption, physical exercise, hours of sleep per night and obesity were found to be significantly associated with the overall health outcomes of individuals in a 9-year longitudinal study. The authors stated that their findings, along with others in this area

provide strong support for the hypothesis that certain routine, discretionary behaviors play an important role in establishing an individual's level of resistance to illness and/or disability [38:20].

Additional research on the relationship between health practices and physical health status was reported by Reed in 1983 (25). His study supported previous research showing 1) the correlation between participation in good health practices and physical health status and 2) the strong relationship between previous health practices and subsequent physical health status. "Good" health practices were found to be correlated with higher health status (25:217).

Air Force Health Practices Research. Research on the health practices of Air Force personnel is very limited. A 1977 study conducted by the USAF Military Personnel Center (USAFMPC) was the first to investigate the health practices, status and perceptions of Air Force military person-

nel. A questionnaire, titled USAF Health Survey, was used in the study to collect data on all areas of health--physical, mental and social--including the seven health practices reported by Belloc and Breslow in 1972. The information contained in the 6675 returned surveys was used by senior Air Force managers to assess the health status of the entire Air Force. Specific results of this study were never published.

In 1985, Wetzler and Cruess reported the results of a comparison between the health practices of Air Force military personnel and adult civilians in the U.S. (37). The researchers used data collected in two different studies, both of which were done in 1977. Data on the Air Force personnel was gathered in the USAF Health Survey as part of the research conducted by USAF Military Personnel Center and data on the U.S. adult civilians was gathered from the 1977 Health Practices Supplement to the National Health Interview Survey conducted by the National Center for Health Statistics.

Due to the similarity of survey questions, three of the seven self-reported health practices (sleep, relative body weight and cigarette smoking) between the two groups were directly comparable. The other four practices (eating breakfast, snacking between meals, alcoholic consumption and amount of physical activity) were discordant in varying degrees and required standardizing. Despite slight demographic differences between the two groups, the results of

the comparisons indicated:

- Air Force members reported less sleep than the U.S. population.

- Both groups reported similar breakfast eating habits, with frequency increasing with education level.

- Pronounced gradients within both populations of snaking habits with older or more educated persons snacking less.

- Air Force members reported less physical activity than the U.S. population

- Similar alcoholic consumption habits between both groups with U.S. population reporting more non-drinkers.

- Air Force members reported a higher percentage of smokers than U.S. population.

- Air Force members reported being closer to desirable weight than U.S. population.

Specific details of the percentage distribution of the two groups for six of the health practices are shown in Tables 2.1 through 2.6 (37:373).

TABLE 2.1

Hours of Sleep in the US Air Force and United States
1977 (Percentages)

Category	Hours of Sleep		
	6 or less	7 or 8	9 or more
Entire Group	30.4* 21.7**	62.9 65.7	6.7 12.5
Sex			
Male	30.4 23.3	63.4 65.6	6.2 11.1
Female	29.3 20.4	56.3 65.9	14.5 13.7
Age			
17-34***	30.6 20.2	61.7 67.1	7.7 12.6
35-44	29.7 21.9	67.0 68.9	3.3 9.2
45-54	26.3 23.0	70.7 68.3	3.1 8.8
Education			
12 years	31.4 20.8	60.6 67.7	8.0 11.5
13 or more years	29.1 19.1	65.7 71.5	5.1 9.3

* Percent of USAF population.

** Percent of U.S. population.

*** Age 20-34 in the U.S. sample.

TABLE 2.2

Eating Breakfast in the US Air Force and United States
1977 (Percentages)

Category	Eating breakfast (days per week)		
	3-7 days (Every day) ^a	1-2 days (Sometimes)	Rarely (Never)
Entire Group	42.7* 58.1**	27.8 15.9	29.5 26.1
Sex			
Male	42.7 57.3	28.2 15.8	29.2 27.0
Female	42.6 58.7	23.6 15.9	33.7 25.4
Age			
17-34***	41.8 41.6	27.7 22.7	30.5 35.8
35-44	44.6 49.3	28.7 18.3	26.8 32.4
45-54	56.9 61.5	25.0 14.1	18.1 24.3
Education			
12 years	36.2 54.0	30.9 17.1	32.9 28.9
13 or more years	46.7 58.2	26.1 15.9	27.2 25.9

* Percent of USAF population.

** Percent of U.S. population.

*** Age 20-34 in the U.S. sample.

^a NCHS response categories.

TABLE 2.3

Physical Activity in the US Air Force and United States
1977 (Percentages)

Category	Physical Activity		
	More active	Same	Less active
Entire Group	32.2* 37.2**	30.6 50.5	37.3 12.3
Sex			
Male	32.5 42.1	30.8 46.2	36.6 11.7
Female	27.2 33.3	26.9 54.0	45.9 12.7
Age			
17-34***	34.9 33.6	31.1 56.2	34.0 10.2
35-44	22.3 38.2	28.6 51.5	49.2 10.2
45-54	22.6 35.6	28.4 52.4	43.9 12.0
Education			
12 years	32.3 36.5	29.8 52.7	37.9 10.8
13 or more years	31.9 43.4	31.4 47.2	36.7 9.4

* Percent of USAF population.

** Percent of U.S. population.

*** Age 20-34 in the U.S. sample.

TABLE 2.4

Alcoholic Consumption in the US Air Force and United States
1977 (Percentages)

Category	Alcoholic consumption (drinks per sitting)		
	Never	1-4	5 or more
Entire Group	15.2* 21.7**	67.8 48.9	16.9 29.4
Sex			
Male	15.2 21.5	67.2 35.4	17.6 43.1
Female	15.9 34.2	76.1 47.3	8.1 18.5
Age			
17-34***	15.4 18.9	66.9 38.0	17.7 43.1
35-44	14.2 24.5	70.8 41.8	15.0 33.7
45-54	17.5 27.3	75.6 46.0	6.9 26.7
Education			
12 years	15.9 25.7	63.8 43.2	20.3 31.1
13 or more years	14.8 17.0	71.5 47.6	13.8 35.4

* Percent of USAF population.

** Percent of U.S. population.

*** Age 20-34 in the U.S. sample.

TABLE 2.5

Smoking Status in the US Air Force and United States
1977 (Percentages)

Category	Smoking Status		
	Never	Former	Current
Entire Group	34.7* 43.9**	22.4 20.1	42.9 36.0
Sex			
Male	34.0 30.9	22.8 28.2	43.3 40.9
Female	44.5 54.4	17.3 13.5	38.1 32.1
Age			
17-34***	38.1 45.3	19.6 13.6	42.3 40.1
35-44	22.1 37.1	31.5 19.5	46.3 43.4
45-54	26.0 36.8	40.3 23.4	33.8 39.8
Education			
12 years	31.1 41.7	19.4 19.0	49.5 39.3
13 or more years	36.9 47.2	25.2 22.1	37.9 30.6

* Percent of USAF population.

** Percent of U.S. population.

*** Age 20-34 in the U.S. sample.

TABLE 2.6

Body Weight in the US Air Force and United States

1977 (Percentages)

Category	Body weight			
	5%+under	5%under- 10%over	10-30% over	30+%over
Entire Group	13.6* 18.2**	39.4 36.0	43.6 31.3	3.5 14.5
Sex				
Male	12.4 12.0	38.2 37.9	45.7 38.4	3.7 11.7
Female	27.6 23.1	55.0 34.4	15.0 25.8	0.3 16.7
Age				
17-34***	15.8 25.8	41.9 40.0	39.8 24.2	2.5 10.0
35-44	5.7 15.3	30.4 36.4	56.5 33.2	7.4 15.0
45-54	3.7 11.5	30.4 34.1	60.2 36.9	5.4 17.5
Education				
12 years	16.4 18.5	40.8 35.6	39.1 31.3	3.7 13.5
13 or more yrs	11.1 21.8	38.4 42.0	47.2 27.4	3.3 8.8

* Percent of USAF population.

** Percent of U.S. population.

*** Age 20-34 in the U.S. sample.

In 1985, additional research on the health practices of military personnel was performed by the DOD in response to the recommendations of a Blue Ribbon Panel on health promotion in the military (28). As part of the study, surveys were sent to a sample of military members worldwide. The survey dealt primarily with drug and alcohol use/abuse but contained several questions concerning the health practices and attitudes of the respondents. As of the time of this writing, results from the study were not available.

Health Promotion

Health promotion is any activity and/or effort directed towards sustaining or increasing individuals', families' and communities' health (21:203-204). The goal of health promotion is to bring about changes in lifestyle that are associated with good health. Some of the common approaches to promoting better health include physical exams, media campaigns, counseling, and participation programs in areas such as smoking control/cessation, stress management, fitness, weight loss, drug and alcohol abuse, and hypertension control.

Early health promotion efforts in 1964 by the U.S. Surgeon General on the hazards of cigarette smoking, and the American Heart Association on the need for a national diet lower in cholesterol and saturated fat have been implicated as one cause for the decline in age-specific coronary mortality (33:649). Since then, this country has

experienced a rapid growth in the number and types of health promotion options. The following sections describe some of the different health promotion activities practiced in the corporate sector and the results of different studies on health promotion efforts.

Corporate Health Promotion Programs. Several thousand U.S. corporations have fitness (5) and/or health programs for their employees. The most prevalent programs offered in the corporate sector, listed in descending order, include company-paid physical exams, alcohol and drug control, smoking cessation, counseling and hotlines, stress management, fitness, information in newsletters, weight loss, and hypertension control (13:75).

One of the leaders in employee fitness is the Kimberly-Clark Corporation, with its Health Management Program (HMP) (12:6). The HMP includes health screening and health risk appraisal, health education, supervised exercise programs, employee assistance programs covering areas such as drug and alcohol abuse, occupational health nursing services, and professional and career education. Salaried and hourly paid employees have access to a 2.5 million dollar Health Services Center that includes a 7000 square foot multiphasic health testing facility and a 32000 square foot physical fitness facility (12:7).

Other large firms with similar programs include the Tenneco Corporation, with its Health and Fitness Program (22), and the Johnson and Johnson Company, with its Live

for Life Program (3).

Corporate Health Promotions Research. Many studies on the effects of company sponsored health promotion programs indicate an association between participation in these programs and decreased absenteeism, medical costs, and increased productivity. Results of studies on Kimberly-Clark's HMP indicate: 1) employees participating in regular exercise programs showed a significant reduction in weight, body fat and blood pressure; 2) the drug rehabilitation success rate is more than 70 percent; 3) absenteeism and accidents of employees participating in the employee assistance program were reduced by 43 percent and 70 percent, respectively; 4) screening programs detected a number of employees at high risk for hypertension, heart attack, or cancer; and 5) the program is useful in recruiting and retaining high caliber employees (13:71).

In a study on the Tenneco Health and Fitness Program, researchers reported a "positive, although probably non-causal relationship between exercise adherence...and above average job performance" (22:24). Additional research indicates a positive relationship between exercise adherence, decreasing absenteeism and reduced health care costs (22:26).

Results of a study which compared employees of two large Canadian life insurance companies, one receiving an organized health and fitness program and the other, serving as a control group without one, revealed similar findings

as the Tenneco and Kimberly-Clark Corporation studies. The health and fitness program provided to the experimental group included 1) 30 minute monitored fitness classes, with each one having similar content in educational, warm-up, aerobic workout, muscle-toning exercises and cool-down components and 2) special health and lifestyle education and awareness activities covering topics such as obesity, over-45, "healthy backs", nutrition, etc. The latter was comprised of a series of films, seminars, displays, individual counseling, newsletters and company-wide campaigns. Over a six month study period, researchers found that participants who adhered to the health and fitness program showed improved general fitness, decreased absenteeism and turnover, and an improvement in morale and attitudes towards both their work environment and personal health (23).

Although regular exercise among the general population has increased in recent years, most work site health promotion efforts tend to attract only a small percentage of employees. These employees are normally male, highly motivated, white-collar workers. A study involving four Johnson & Johnson companies indicated a public health intervention program was effective in producing changes in regular exercise habits and physical fitness of a significant number of employees (3). The Live for Life Program, a public health intervention program offered to the four companies, emphasized and supported healthier lifestyles, especially regular exercise. After an initial health

screen, employees in the study were invited to participate in a seminar that reinforced, among other things, the importance of regular exercise. Employees were then introduced to a wide range of health promotion programs and activities available to them, at the work site, to support healthier lifestyles. Employees then had the opportunity to participate, on their own time, in regularly scheduled activities in exercise, smoking cessation, stress management, weight control, nutrition and blood pressure control. In addition to these regularly scheduled formal activities, employees were regularly exposed to highly visible health education and promotion campaigns such as newsletters, health fairs, contests, and informational displays in high traffic areas. Over a two year study period, the public health intervention program aimed at the entire work force produced company-wide improvements in exercise and physical fitness that "were associated with beneficial changes in coronary heart disease risk factors and in several psychosocial variables" (3:926).

Government Health Promotions Research. One of the few studies of a government health promotion program was performed by the National Aeronautics and Space Administration (NASA), in cooperation with the Heart Disease and Stroke Control Program of the U.S. Public Health Service, on the Physical Fitness Program at NASA Headquarters in Washington D.C. As evidence that a physical exercise program has economic dividends for the employer, survey

results of those who adhered to the Physical Fitness Program indicated:

- Half reported better job performance and better attitudes towards their work.
- 93 percent said they felt better about their personal health.
- 89 percent reported improved stamina.
- Over 60 percent reported a loss of weight.
- 50 percent said they felt less stress and tension.
- 40 percent said they were paying more attention to their diet.
- 30 percent reported sounder sleep.
- 15 percent said they quit or cut down on smoking cigarettes [10:4].

Summary

The results and findings of the previously mentioned studies indicate that 1) following/adopting "good" health habits is strongly associated with longer life and greater freedom from illness; and 2) work-site, intervention health promotion programs are successful in bringing about changes in personal habits leading to healthier lifestyles. The USAF Health Promotion Program is, in part, a work-site, intervention program aimed at maintaining/improving the health lifestyles of Air Force personnel. This research takes a first step in assessing the impact of the Air Force Health Promotion Program on its employees by investigating their health practices, attitudes and perceptions.

III. Research Design and Methodology

Introduction

Chapter III outlines the approach used to gather and analyze the data required to answer the stated research questions. The data collection method is described and the target population is defined. Next, the sampling plan and size are discussed followed by a description of how the survey questionnaire was developed. The descriptive analyses to be performed and the measurement scales used are then presented and finally, the assumptions and limitations of this research effort are listed.

Justification

To answer the research questions of Chapter I it was necessary to elicit self-reported information from Air Force employees. The data collection method selected to accomplish this was a mail survey. This approach was deemed less costly and time-consuming than alternative methods such as telephone or personal interviews. In addition, a questionnaire can be completed when it is most convenient for the respondent. For this research effort the survey respondents were guaranteed anonymity in an effort to minimize nonresponse bias and to elicit open and honest information.

Target Population

The researcher selected a single Air Force organization as the target population in this study. The design of the research was to survey the military and civilian personnel of one Air Force organization and assess their health practices, attitudes and perceptions. The information extracted from the respondents' surveys would be used to make comments about their health practices and about their perceptions of health promotion within the organization. Although not intended or statistically inferred, the results of a study such as this of a single Air Force organization may apply to or be indicative of the Air Force overall.

Several Air Force organizations were considered as potential target populations for this study. Headquarters Air Force Logistics Command (HQ AFLC), located at Wright-Patterson Air Force Base (WPAFB), was ultimately chosen for several reasons. First, the organization was convenient and would allow the researcher to interface directly with the personnel responsible for health promotion. Second, HQ AFLC personnel, for the most part, have sedentary jobs and thus represent a less active portion of the population of Air Force personnel. Third, since this is a Air Force Major Command headquarters, it was assumed the average rank/grade and thus age is higher than the Air Force average. Since this is the group more vulnerable to chronic diseases, their health should be of greatest concern to the

Air Force. Fourth, and possibly most important, HQ AFLC is viewed as one of the most advanced and involved organization in health promotion efforts and activities in the Air Force (28). This results primarily from senior AFLC leaders being seriously committed to improving the health and wellness of their personnel (19).

For the purposes of this research the target population included all active duty military and civilian personnel directly assigned to HQ AFLC with the exception of general officers and Senior Executive Service (SES) civilians. Requests to survey HQ AFLC generals and SES civilians were disapproved by Air Force Military Personnel Center. Therefore, only HQ AFLC personnel in the rank of E-1 through O-6 and grade of GS-1 through GM-15 were surveyed. A search in the Atlas Data Base system placed the total size of the target population, as of 25 April 1986, to be 1783. This total figure was comprised of 1387 civilians and 396 military personnel.

Sampling Plan

Since this research focuses on both military and civilian personnel, the target population was segregated into two stratified groups so that comparisons between them could be made. Once the target population was stratified into military and civilian subgroups, a simple random sample was drawn from each stratum. To obtain a desired statistical confidence level of 95 percent, the required

sample size for each group was determined using the following formula:

$$n = [N (z^2) * P (1-P)] / [(N-1) d^2 + z^2 * P (1-P)]$$

where:

n = sample size

N = population size
(1387 civilians)
(396 military)

P = maximum sample size factor (.50)

d = desired tolerance (.05)

z = factor of assurance (1.96)
for 95 percent confidence interval

The calculated sample size for 95 percent statistical confidence for civilians is 301 and for military is 196 individuals (30:11-14). Anticipating a response rate of approximately 70 percent, 710 surveys were mailed to randomly selected individuals in the target population. The individuals names and organization addresses were provided by the HQ AFLC personnel office (16; 35).

Data Collection Instrument

The survey used in this study--The HQ AFLC Health Survey (Appendix A)--was designed to answer the six research questions listed in Chapter I. The proposed questionnaire contained several of the same questions used in the 1977 USAF Health Survey (31). The intention was to use as many questions as possible from the 1977 survey so that commonalty between the two surveys would aid future longitudinal studies of Air Force personnel. This suggestion

and approval to use parts of the original survey was provided by Colonel (Dr.) Harry Wetzler, one of the designers and researchers of the original USAFMPC study (36). Other questions in this study's survey were taken from a draft USAF Health Promotion Program questionnaire which is currently in the process of being approved for use by all Air Force Health Promotion Coordinators (HPC)(28). The draft questionnaire was designed to assist each HPC determine 1) the health practices and 2) the interest level in receiving health related information and participation in health promotion-sponsored activities of individuals within their respective area of responsibility.

Questionnaire Structure

The questionnaire used in this research was divided into three sections. The first part (Questions 1-9) gathered descriptive information such as grade/rank, age, sex, education level and marital status. This information was used to develop a demographic profile of the target population.

The second section (Questions 10-70) dealt with the health practices, perceptions and attitudes of the target population. Also included in this section were questions concerning reasons for changes to past health practices and interest level in receiving health promotion information and participation in health promotion sponsored activities.

Survey questions 15-17, 24, 28, and 42-45 were used to

answer Research Question One concerning the health practices of Air Force personnel. These specific questions investigated six of the health practices identified by Belloc and Breslow (2) as being good indicators of health status--smoking, alcoholic consumption, physical activity, eating breakfast, hours of sleep and body weight. Additional information on the respondents' overall health, use of seat belts, eating habits, motivations behind reported health practices, perceptions of health status and knowledge of nutrition was gathered in questions 10-14, 18-20, 25-27, 33, 34, 40, 41 and 46-51.

Questions 35, 36 and 57 were designed to indicate the level of awareness of specific health promotion efforts among Air Force personnel. This data will be used to answer Research Question Two.

Question 54 will be used to answer Research Question Three on how employees receive health promotion information.

Research Question Four concerning the perceived usefulness of Air Force health promotion efforts will be answered using responses to survey questions 52 and 53.

Research Question Five will be answered based on responses to survey questions 22, 23, 29, 31, 32, 37, 38, 55 and 56. These nine questions measure employees' attitudes towards health as it relates to work.

Questions 21, 30, 36 and 58-70 will be used to answer Research Question Six. These questions were designed to

assess employees' interest level in receiving information and attending/participating in activities related to health promotion.

The third and final section of the questionnaire was a comment sheet where respondents could 1) fill in answers that were not provided for certain questions in part 2 and 2) make critical comments of or provide suggestions on the Air Force Health Promotion Program. The comments and suggestions provided by the respondents will be evaluated by the researcher and incorporated in the discussions of findings, and recommendations and conclusions.

Validity and Reliability of the Survey Instrument

The validity and reliability of self-reported health practices is an area that has received limited research with mixed results. Early studies on this topic indicated a high degree of association between self-reported and actual health practices (14; 20). Other more recent studies indicate that while self-reporting of body weight is fairly accurate (27), self-reporting of alcoholic consumption (11) and frequency of cigarette smoking (32) usually underestimate actual usage. Similar research on the validity of other self-reported health practices has not been reported. Two prominent authors in health research agree on the need for further study on self-reported health practices (25:227; 37:375).

Analysis Plan

The Statistical Package for the Social Sciences (SPSS-X) was used to accomplish analysis of the data. SPSS-X subprograms FREQUENCIES and CROSSTABS were used to analyze data for answering research questions one through six. Both of these subprograms and the specific research questions they were used on are briefly discussed below.

Comments and suggestions provided by respondents were manually tabulated and grouped into categories for use in the discussion of data analysis results and research conclusions.

FREQUENCIES. The numbers and percentages of each possible response to each survey question were computed using the SPSS-X subprogram FREQUENCIES. FREQUENCIES also computes the mean, mode, median, minimum and maximum for each question. Results of FREQUENCIES analyses on survey questions used to answer research questions one through six are reported in Chapter IV.

CROSSTABS. The numbers and percentages of each possible response to each survey question by each of the two target population groups were computed using the subprogram CROSSTABS. The CROSSTABS output allows for easy comparison of percentages between the military and civilian subgroups. Research Questions One and Six were partially answered using CROSSTABS. Results of CROSSTABS analyses are presented in tabular format in Chapter IV.

Measurement Scales

In order to provide a measure of the desired information necessary to answer Research Questions Four and Five involving perceptions and attitudes, several Likert-type scales were used. The Likert-type scales were chosen because they provided the best measure of the needed information and because they are flexible, reliable and can be quickly constructed (9:256-258). The first was a seven point Likert scale consisting of the possible responses 1) strongly agree, 2) moderately agree, 3) agree, 4) don't know/uncertain, 5) disagree, 6) moderately disagree, 7) strongly disagree. The second scale, a variant of the five point Likert, consisted of the possible responses 1) yes, it's been proven beyond a reasonable doubt, 2) yes, the evidence seems to indicate it, 3) don't know/uncertain, 4) no, the evidence is not convincing, 5) no, this is totally unproven. The remaining scales were also five point Likert scales where the respondent was shown a continuum with values representing different degrees of opinion. Two different scales appearing in the questionnaire were:

1	2	3	4	5
+-----+-----+-----+-----+				
Not enough		Just right		Too much

1	2	3	4	5
+-----+-----+-----+-----+				
Very Poor		Average		Very well

Both the five and seven point scales provide ordinal data that can be evaluated in the same manner.

Assumptions and Limitations

The first assumption that applies to this study is that survey respondents provided honest answers and correctly coded them. A second assumption is that nonresponse by a portion of the target population will not affect the results and conclusions.

The primary limitations to this study were time and sample size. Due to these limitations, the results apply only to the target population and are descriptive in nature. No relationships between variables were investigated nor were statistical inferences from the target population to the total population--USAF military and civilian personnel worldwide--attempted. A secondary limitation was the accuracy involved in measuring perceptions and attitudes. Questions in the survey on perceptions and attitudes were intended to elicit general feelings and opinions of health and health-related issues.

IV. Results and Analysis

Introduction

This chapter presents the results of the survey data analysis using the research methodology formulated in Chapter III. The first section includes a discussion of the survey response rate. The second section provides a demographic profile of the target population. The third and final section addresses all of the research questions in order. Each research question is restated and followed by related data analysis and results. Brief explanations are used to point out especially important results.

Survey Response Summary

Of the 710 surveys mailed out, 465 were returned resulting in an overall response rate of 65.5 percent. The response rate among the two groups (civilians and military) was virtually identical: 282 of the 430 surveys mailed to civilians were returned (65.6%) and 183 of the 280 surveys sent to military members were returned (65.4%). Tables 4.1 and 4.2 show the response rate by civilian grade and military rank, respectively.

TABLE 4.1

Survey Response Rate by Civilian Grade

Grade	No. of Responses	No. in Sample	Response Rate (%)
GM/GS-15	12	17	70.6
GM/GS-14	17	21	81.0
GM/GS-13	57	81	70.4
GS-12	91	129	70.5
GS-11	17	30	56.7
GS-9	8	14	57.1
GS-8	2	2	100.0
GS-7	13	24	54.2
GS-6	20	30	66.7
GS-5	23	41	56.1
GS-4	12	26	46.2
GS-3	7	11	63.6
GS-2	0	1	0.0
GS-1	3	3	100.0
TOTAL	282	430	65.6

TABLE 4.2

Survey Response Rate by Military Rank

Rank	No. of Responses	No. in Sample	Response Rate (%)
O-6	25	37	67.6
O-5	23	37	62.2
O-4	35	50	70.0
O-3	36	63	57.1
O-2	4	5	80.0
O-1	2	3	66.7
E-9	6	10	60.0
E-8	10	13	76.9
E-7	16	18	88.9
E-6	9	12	75.0
E-5	11	19	57.9
E-4	5	11	45.5
E-3	1	1	100.0
E-2	0	1	0.0
E-1	0	0	0.0
TOTAL	183	280	65.4

As shown in Table 4.3, males had a slightly higher response rate (66.7%) than females (61.8%).

TABLE 4.3
Survey Response Rate by Sex

Sex	No. of Responses	No. in Sample	Response Rate (%)
Male	318	477	66.7
Female	144	233	61.8
TOTAL	462	710	65.1

3 missing cases

Demographic Characteristics

Tables 4.4 through 4.9 summarize six demographic characteristics of the respondents in this study.

Respondents' Ranks and Grades. Table 4.4 shows that GS-12s represent the largest percentage of respondents and the top four civilian and military grades/ranks make up the majority of the respondents (63.7%).

TABLE 4.4

Respondents' Ranks and Grades

Rank/Grade	Frequency		Cumulative
	Count	Percentage	
GM/GS-15	12	2.6	2.6
GM/GS-14	17	3.7	6.3
GM/GS-13	57	12.3	18.6
GS-12	91	19.6	38.2
GS-11	17	3.7	41.9
GS-9	8	1.7	43.6
GS-8	2	.4	44.0
GS-7	13	2.8	46.8
GS-6	20	4.3	51.1
GS-5	23	4.9	56.0
GS-4	12	2.6	58.6
GS-3	7	1.5	60.1
GS-1	3	.6	60.7
O-6	25	5.4	66.1
O-5	23	4.9	71.0
O-4	35	7.5	78.5
O-3	36	7.7	86.2
O-2	4	.9	87.1
O-1	2	.4	87.5
E-9	6	1.3	88.8
E-8	10	2.2	91.0
E-7	16	3.4	94.4
E-6	9	1.9	96.3
E-5	11	2.4	98.7
E-4	5	1.1	99.8
E-3	1	.2	100.0
TOTAL	465	100.0	

Respondents' Sex. Table 4.5 indicates that overall, approximately one out of every three HQ AFLC employees is female. Males comprised 87.9 percent and females 12.1 percent of the military respondents. The civilians were more evenly distributed with males representing 56.4 percent and females 43.6 percent.

TABLE 4.5
Respondents' Sex

Category	Frequency					
	Civilian		Military		Total	
	Count	%	Count	%	Count	%
Male	158	56.4	160	87.9	318	68.8
Female	122	43.6	22	12.1	144	31.2
TOTAL	280	100.0	182	100.0	462	100.0

3 missing cases

Respondents' Marital Status. Table 4.6 shows that approximately four out of every five respondents (368) is married and of those, 84 percent (309) have been married only once.

TABLE 4.6

Respondents' Marital Status

Category	Frequency	
	Count	Percentage
Single	51	11.0
Married (once)	309	66.7
Divorced & remarried	59	12.8
Separated or divorced	38	8.2
Other	6	1.3
TOTAL	463	100.0

2 missing cases

Respondents' Ages. Table 4.7 shows that the frequency distribution of respondents is remarkably symmetrical, centered on approximately age 40.

TABLE 4.7
Respondents' Ages

Category	Frequency		
	Count	Percentage	Cumulative
< 20 years old	2	0.4	0.4
20-25 years old	28	6.1	6.5
26-30 years old	47	10.2	16.7
31-35 years old	60	13.0	29.7
36-40 years old	86	18.6	48.3
41-45 years old	98	21.2	69.5
46-50 years old	57	12.3	81.8
51-55 years old	50	10.8	92.6
56-60 years old	28	6.1	98.7
61 and older	6	1.3	100.0
TOTAL	462	100.0	

3 missing cases

Respondents' Length of Service/Employment. Table 4.8 indicates the largest percentage of respondents have between 17 and 20 years of employment/service with the government, with over 50 percent having 17 or more years.

TABLE 4.8
Respondents' Years of Service/Employment

Category	Frequency		
	Count	Percentage	Cumulative
0-3 years	30	6.5	6.5
4-8 years	69	15.0	21.5
9-12 years	53	11.5	33.0
13-16 years	57	12.4	45.4
17-20 years	87	19.0	64.4
21-24 years	59	12.9	77.3
25-28 years	54	11.8	89.1
29 or more	50	10.9	100.0
TOTAL	459	100.0	

6 missing cases

Respondents' Education Level. Table 4.9 shows that over 58 percent of the sample have at least a bachelor's degree, while a surprising 35 percent had graduate degrees.

TABLE 4.9
Respondents' Education Level

Category	Frequency	
	Count	Percentage
Less than high school	1	.2
High school	48	10.4
Less than 2 yrs college	98	21.2
Associate/2 yrs college	20	4.3
More than 2 yrs college but no degree	26	5.6
Bachelor's	109	23.6
Master's	146	31.6
PhD	14	3.1
TOTAL	462	100.0

3 missing cases

Analysis and Results of Research Questions

Research Question One. WHAT ARE THE CURRENT HEALTH PRACTICES OF AIR FORCE MILITARY AND CIVILIAN PERSONNEL AND HOW DO THEY COMPARE WITH EACH OTHER?

To answer this question the individuals in the target population were asked to respond to several questions concerning six different health practices. The survey questions used to answer Research Question One were 15-17, 24, 28 and 42-45. The six health practices investigated--exercise, eating breakfast, hours of sleep, body weight, smoking status and consumption of alcoholic beverages--were identified by Belloc, Breslow and others as being good indicators of health status and predictors of longevity (1; 2; 4). The results of each health practice question in the survey are discussed separately in the text below. Frequency tables of the responses to each question are presented in tabular format and then results of crosstabulations of each health practice with military and civilian respondents' age, sex and education level are shown.

Smoking Status. Questions 15, 16 and 17 investigated the smoking status of the respondents. Results of responses to each question are shown in Tables 4.10, 4.12 and 4.13. 81 percent of the respondents reported themselves currently as cigarette non-smokers. Table 4.11 provides additional information on comparisons, in percentages, between military and civilian personnel overall, and then between military and civilian personnel falling in each

smoking category by sex, age and education level. The data contained in this table indicates a larger percentage of military personnel are non-smokers (84.1%) than civilian personnel (78.9%). A higher percentage of military (53.0%) reported having never smoked than civilians (42.5%). However, a higher percentage of civilians (36.4%) reported having quit smoking than military (31.1%). The largest percentage of respondents who smoke do so at a rate of one to two packs per day. This was true of both civilian and military members. The median age group of smoking respondents was 36-40 years old. 64.8 percent of the smokers were male and 35.2 percent were female. The military smokers were comprised of 89.7 percent males and 10.3 percent females whereas the civilian smokers were comprised of 52.5 percent males and 47.5 percent females.

As shown in Table 4.12, only 5.9 percent of the respondents reported smoking cigars or pipes. More military personnel (8.2%), primarily field grade officers (Major through Colonel), smoked cigars or pipes than civilian personnel (4.4) and as expected, all cigar and pipe smokers were male.

As for the use of smokeless tobacco, Table 4.12 indicates only 2.4 percent of the target population reported using it. Again, the military had a higher percentage of users (3.8%) than civilians (1.5%).

TABLE 4.10

Respondents' Cigarette Smoking Status

Category	Frequency		
	Count	Percentage	Cumulative
No, never	216	46.7	46.7
No, quit	159	34.3	81.0
Less than 1/2 pk/day	11	2.4	83.4
1/2 to 1 pack/day	29	6.3	89.6
1 to 2 packs/day	39	8.4	98.1
More than 2 pks/day	9	1.9	100.0
TOTAL	463	100.0	

2 missing cases

TABLE 4.11

Crosstabulations of Smoking Status by Subgroup by Sex, Age
and Education Level
(Percentages)

Category	Smoking Status (packs per day)					
	Never	Former	<1/2	1/2-1	1-2	>2
Target Population						
Military	53.0	31.1	1.6	6.6	7.1	0.5
Civilian	42.5	36.4	2.9	6.1	9.3	2.9
Sex						
Male*	52.5	31.3	1.9	6.9	7.5	0.0
	40.1	40.1	2.5	5.1	7.0	5.1
Female	54.5	31.8	0.0	4.5	4.5	4.5
	45.5	31.4	3.3	7.4	12.4	0.0
Age						
20-25**	62.5	25.0	0.0	0.0	12.5	0.0
	59.1	18.2	0.0	9.1	13.6	0.0
26-35	59.6	26.3	1.8	5.3	7.0	0.0
	57.1	18.4	6.1	8.2	8.2	2.0
36-45	51.5	29.3	1.0	9.1	8.1	1.0
	45.9	36.5	2.3	2.3	11.8	1.2
46-55	36.8	57.9	5.3	0.0	0.0	0.0
	32.2	47.1	3.5	5.7	5.7	5.7
56 & above	0.0	0.0	0.0	0.0	0.0	0.0
	26.5	47.1	0.0	11.8	11.8	2.9
Education						
High school***	0.0	66.7	0.0	33.3	0.0	0.0
	39.1	23.9	4.3	10.9	17.4	4.4
>HS-<Bach	35.3	31.4	2.0	13.7	15.7	2.0
	36.6	40.9	3.2	5.4	9.7	4.3
Bach-PhD	61.2	30.2	1.6	3.1	3.9	0.0
	47.9	37.9	2.1	5.0	5.7	1.4

* 1st row in each category-military, 2nd row-civilian.

** includes 2 civilians under 20 years of age.

*** includes 1 civilian with less than high school education.

TABLE 4.12

Respondents' Cigar/Pipe Smoking Status

Category	Frequency	
	Count	Percentage
Yes	27	5.9
No	428	94.1
TOTAL	455	100.0

10 missing cases

TABLE 4.13

Respondents' Smokeless Tobacco Use

Category	Frequency	
	Count	Percentage
Yes	11	2.4
No	444	97.6
TOTAL	455	100.0

10 missing cases

Strenuous Exercise. Question 24 investigated the respondents' amount of strenuous physical exercise. Respondents were asked how often they participate in forms of exercise that require strenuous physical activity for at least 20 minutes per session. The Surgeon General established a national goal of having 60 percent of the U.S. adult population engaged in regular vigorous physical exercise by 1990 (24). Experts suggest regular strenuous exercise at least three times a week is necessary to maintain good physical fitness (18:56). Table 4.14 indicates only 36.0 percent of the survey respondents participate in strenuous physical activity three or more times per week. Table 4.15 shows that overall, military members get more strenuous exercise, indicated by the fact that 51.9 percent of the military personnel fall in this category compared to only 25.6 percent of the civilian personnel. When looking at this group who exercise three or more times per week, 80 percent of the civilians are GS-11s or higher and captains through colonels make up 62.1 percent of the military members. Males comprise 79.5 percent of the group strenuously exercising three or more times per week: 90.5 percent of the military members were male while only 64.8 percent of the civilian members were male.

As shown in Table 4.14, 31.7 percent of the survey respondents get little (less than once a month) or no regular strenuous exercise. Data from Table 4.15 indicate 38.8 percent of the civilian personnel and only 20.7 percent of

military personnel fall in this category. Civilian males represent the largest percentage (42.5%) in this group who do not regularly exercise strenuously. With respect to age, the percentage of military respondents in each age category who reported exercising strenuously three or more times per week decreased very slightly, but steadily, as years increased. This smoothly decreasing trend was not true of civilians in the same exercise category as they experienced several fluctuations between age groups.

TABLE 4.14

Respondents' Strenuous Physical Activity Status

Category	Frequency		
	Count	Percentage	Cumulative
Almost every day	44	9.5	9.5
3-5 times/week	123	26.5	36.0
1-2 times/week	99	21.3	57.3
1-3 times/month	51	11.0	68.3
Less than once a month	56	12.1	80.4
Never/rarely	91	19.6	100.0
TOTAL	464	100.0	

1 missing case

TABLE 4.15

Crosstabulations of Strenuous Physical Exercise by Subgroup
by Sex, Age and Education Level
(Percentages)

Category	Frequency of Strenuous Exercise					
	Almost every day	3-5 per week	1-2 per week	1-3 per month	<1 per month	Rarely or never
Target Pop.						
Military	31.7	21.3	23.5	13.1	6.0	4.4
Civilian	5.7	19.9	22.1	13.5	12.8	26.0
Sex						
Male*	16.3 8.3	37.5 21.0	20.6 21.0	6.9 10.2	10.0 12.7	8.8 26.8
Female	9.1 2.5	31.8 18.0	13.6 23.8	9.1 18.0	18.2 12.3	18.2 25.4
Age						
20-25**	12.5 0.0	50.0 22.7	25.0 27.3	12.5 18.2	0.0 13.6	0.0 18.2
26-35	10.0	26.0	28.0	14.0	12.0	10.0
36-45	7.1	21.2	23.5	14.1	15.3	18.8
46-55	3.5	12.6	17.2	13.8	11.5	41.4
56 & above	5.9	23.5	14.7	8.8	11.8	35.3
Education						
High school***	33.3 2.2	0.0 13.0	0.0 15.2	33.3 19.6	0.0 13.0	33.3 37.0
>HS-<Bach	13.7 4.3	39.2 19.6	13.7 27.2	3.9 9.8	15.7 9.8	13.7 29.3
Bach-PhD	15.5 7.9	36.4 22.1	23.3 21.4	7.8 13.6	9.3 14.3	7.7 20.7

* 1st row of each category-military, 2nd row-civilian.

** includes 2 civilians under 20 years of age.

*** includes 1 civilian with less than high school education.

Body Weight. Question 28 addressed the health practice of controlling body weight. Respondents were asked how their present weight compares to what they would like to weigh. The question was designed to give an indication of how individuals felt about their current weight as to whether they considered themselves underweight, within their desirable weight or overweight. For the purposes of this research, an underweight person was defined as one who's current weight is 6 or more pounds less than their desirable weight while an overweight person was defined as one who's current weight is 6 or more pounds greater than their desirable weight. Table 4.16 shows 16.3 percent consider themselves underweight, 33.4 percent within their ideal weight and 50.3 percent overweight. When comparing military versus civilian in Table 4.17, more military members (41.2%) reported themselves as being within their desirable weight than civilians (28.6%). 53.6 percent of civilians indicated they thought of themselves as overweight whereas only 45.0 percent of the military did. Similarly, more civilians (17.8%) also thought of themselves as underweight than military (13.7%). 56.0 percent of the overweight civilians were male and 44.0 percent female. Of overweight military, 87 percent were male and 13 percent female. Overall, the data indicate military personnel think of themselves as closer to their ideal weight with less members overweight than do civilian personnel.

Table 4.17 further indicates a much higher percentage

of both male and especially female civilians reported themselves as 11 pounds or more over their weight than military members. 37.8 percent of civilian males versus 17.5 percent of military males were overweight by 11 or more pounds while the difference between females was even greater: 38.3 percent for civilian females compared to 4.5 percent for military females. When looking at the data by age groups of military and civilian personnel, the largest difference between members of both stratum who are within 5 pounds of their desirable weight is in the 26-35 category. Almost twice as many military members (50.9%) as civilian members (26%) thought of themselves as being within their desirable weight. Interestingly, when looking at the numerical percentage difference between civilian and military of each age group who reported themselves overweight, the value consistently decreases from 15.9 percent in the 20-25 category to minus 7.4 percent in the 46-55 category. This possibly indicates that as military members get older they tend to put on additional weight at a faster rate than civilians.

TABLE 4.16

Respondents' Present Weight versus Ideal Weight

Category	Frequency		
	Count	Percentage	Cumulative
21 or more lbs less	18	3.9	3.9
11-20 lbs less	23	5.0	8.9
6-10 lbs less	34	7.4	16.3
Within 5 lbs	154	33.4	49.7
6-10 lbs greater	97	21.0	70.7
11-20 lbs greater	73	15.8	86.6
21 or more lbs greater	62	13.4	100.0
TOTAL	461	100.0	

4 missing cases

TABLE 4.17

Crosstabulations of Present versus Ideal Weight by Subgroup
by Sex, Age and Education Level
(Percentages)

Category	No. of lbs within Ideal Weight				
	11 lbs or more less	6-10 lbs less	Within 5 lbs	6-10 lbs greater	11 lbs or more greater
Target Population					
Military	6.0	7.7	41.2	29.1	15.9
Civilian	10.9	6.9	28.6	15.6	38.0
Sex					
Male*	6.3	8.1	41.0	26.9	17.5
	10.3	5.1	31.4	15.4	37.8
Female	4.5	4.5	40.9	45.5	4.5
	11.7	9.2	25.0	15.8	38.3
Age					
20-25**	0.0	37.5	37.5	12.5	12.5
	13.6	9.1	36.4	9.1	31.8
26-35	8.8	3.5	50.9	29.8	7.0
	14.0	12.0	26.0	18.0	30.0
36-45	6.1	9.1	36.4	29.3	19.2
	9.4	8.2	23.5	16.5	42.4
46-55	0.0	0.0	36.8	36.8	26.3
	10.2	3.4	30.7	14.8	40.9
56 & above	0.0	0.0	0.0	0.0	0.0
	9.7	6.5	35.5	12.9	35.5
Education					
High school***	0.0	66.7	33.3	0.0	0.0
	15.9	15.9	22.7	9.1	36.4
>HS-<Bach	9.8	3.9	33.3	33.3	19.6
	9.7	6.5	26.9	14.0	43.0
Bach-PhD	4.7	7.8	44.2	28.7	14.7
	9.4	5.0	30.9	18.7	36.0

* 1st row of each category-military, 2nd row-civilian.

** includes 2 civilians under 20 years of age.

*** includes 1 civilian with less than high school education.

Hours of Sleep. The average amount of sleep of each respondent was the topic investigated in question 42. Table 4.18 indicates the largest percentage of respondents reported 7 hours of sleep per night. 80.3 percent of the target population average 7 or fewer hours of sleep. The median response was 7 hours of sleep and when assigning the response "less than 4 hours" a value of three (3) hours, the mean for the entire group was 6.75 hours of sleep. Mean hours of sleep for civilians was 6.77 hours versus 6.73 for military. As shown in table 4.19, military members reported a higher percentage in the categories "6 hours or less" and "7 hours" and a lower percentage in the "8 hours" and "9 hours or more" than civilians. Both military and civilian females reported more sleep than their male counterparts. With respect to age, the largest difference in the reported sleep between military and civilians occurred in the category "20 to 25" followed by the category "26 to 35". In both cases a higher percentage of civilians reported more sleep than military members.

TABLE 4.18

Respondents' Average Hours of Sleep per Night

Category	Frequency		
	Count	Percentage	Cumulative
Less than 4 hrs	3	.6	.6
4 hours	3	.6	1.3
5 hours	30	6.5	7.8
6 hours	132	28.6	36.4
7 hours	203	43.9	80.3
8 hours	84	18.2	98.5
9 hours	7	1.5	100.0
TOTAL	462	100.0	

3 missing cases

TABLE 4.19

Crosstabulations of Hours of Sleep by Subgroup by Sex, Age
and Education Level
(Percentages)

Category	Average Sleep per Night			
	6 hrs or less	7 hrs	8 hrs	9 hrs or more
Target Population				
Military	37.0	44.8	17.1	1.1
Civilian	35.9	43.4	18.9	1.8
Sex				
Male*	38.0	44.9	15.8	1.3
	34.8	44.9	19.6	.6
Female	31.8	40.9	27.3	0.0
	37.2	41.3	18.2	3.3
Age				
20-25**	37.5	62.5	0.0	0.0
	27.3	36.4	31.8	4.5
26-35	33.9	51.8	14.3	0.0
	40.0	40.0	18.0	2.0
36-45	37.4	42.4	19.2	1.0
	34.1	48.2	15.3	2.4
46-55	44.4	27.8	22.2	5.6
	37.5	42.0	19.3	1.1
56 & above	0.0	0.0	0.0	0.0
	33.3	45.5	21.2	0.0
Education				
High school***	66.7	0.0	33.3	0.0
	35.6	46.7	15.6	2.2
>HS-<Bach	41.2	47.1	9.8	2.0
	41.9	33.3	20.4	4.3
Bach-PhD	34.6	44.9	19.7	.8
	32.1	49.3	18.6	0.0

* 1st row of each category-military, 2nd row-civilian.

** includes 2 civilians under 20 years of age.

*** includes 1 civilian with less than high school education.

Eating Breakfast. Question 43 asked respondents "How many times per week do you eat breakfast?" The most frequent response, shown in Table 4.20, was "7 times a week", representing 32.1 percent of the target population. The median response was "4 times a week" while the overall mean was 3.85 times per week. The first two lines of Table 4.21 clearly indicate military members eat breakfast less often than civilians. Over half the military respondents reported they eat breakfast only 2 times per week or less. A higher percentage of civilians reported eating "3-5 times per week" and "6-7 times per week" than military. Comparisons among sexes indicate military males eat breakfast much less often than civilian males while just the opposite, to a lesser extent, is true of military females. The age at which there is the largest difference between the eating habits of the two strata is 46-55, which possibly indicates that as military members get older they tend to eat breakfast less frequently than comparably aged civilian personnel. Military members with an education level greater than high school but without a bachelor's degree versus similarly educated civilians reported large differences in the number of times per week breakfast is eaten. This indicates enlisted military are more prone to skip breakfast than comparable civilians.

TABLE 4.20

Number of Times per Week Respondents' Eat Breakfast

Category	Frequency		
	Count	Percentage	Cumulative
None	68	14.7	14.7
1/week	51	11.0	25.6
2/week	85	18.3	44.0
3/week	27	5.8	49.8
4/week	15	3.2	53.0
5/week	35	7.5	60.6
6/week	34	7.3	67.9
7/week	149	32.1	100.0
TOTAL	464	100.0	

1 missing case

TABLE 4.21

Crosstabulations of Eating Breakfast by Subgroup by Sex, Age
and Education Level
(Percentages)

Category	No. of Times Breakfast Eaten		
	2 per week or less	3-5 per week	6-7 per week
Target Population			
Military	51.1	14.3	34.6
Civilian	39.4	18.1	42.5
Sex			
Male*	52.8 32.9	12.6 19.6	34.6 47.5
Female	40.9 47.5	22.7 16.4	36.4 36.1
Age			
20-25**	62.5 59.1	12.5 18.2	25.0 22.7
26-35	52.6 56.0	21.1 18.0	26.3 26.0
36-45	51.5 44.7	10.1 14.1	38.4 41.2
46-55	38.9 23.9	16.7 19.3	44.4 56.8
56 & above	0.0 26.5	0.0 23.5	0.0 50.0
Education			
High school***	0.0 47.8	33.3 17.4	66.7 34.8
>ES-<Bach	72.5 40.9	13.7 17.2	13.7 41.9
Bach-PhD	43.8 35.7	14.1 18.6	42.2 45.7

* 1st row of each category-military, 2nd row-civilian.

** includes 2 civilians under 20 years of age.

*** includes 1 civilian with less than high school education.

Consumption of Alcoholic Beverages. Questions 44 and 45 dealt with the consumption of alcoholic beverages, such as beer, liquor, and wine, by respondents. The first question asked "How often do you drink alcoholic beverages?" in an attempt to measure the frequency of consumption while the second question, number 45, asked "If you drink, how many drinks do you usually consume at one time?" to determine the intensity of alcohol consumption.

Frequency of Alcohol Consumption. The respondents were well distributed in their responses to question 44. The largest percentage of respondents (18.8%) reported they consume alcohol 2 to 3 times per week. The next largest group (15.9%) reported they were non-drinkers. Almost one half the respondents in the target population (46.8%) drink alcoholic beverages one or more times a week. The frequency of responses to question 44 is shown in Table 4.22. For ease of discussion and presentation in the cross-tabulation table, the frequency of consumption responses were grouped into four categories: non-drinkers; occasional drinkers, which are defined in this study as having one drink per week or less; regular drinkers, who consume alcoholic beverages 2 to 5 times per week; and chronic drinkers, who drink 6 to 7 times a week. Table 4.23 indicates approximately one half of both the military and civilian personnel are occasional drinkers. Slightly more civilians (17.0%) than military (14.3%) are non-drinkers while more military reported regular (27.5%) and chronic drinking

(8.7%) than civilians (23.4% and 8.5% respectively). A comparison by sex shows that civilian and military males have virtually the same drinking habits except in the "6 or more per week" category where slightly more civilians (11.4%) are chronic drinkers than military (9.4%). Fewer military females reported themselves as non-drinkers and chronic drinkers than civilian females with just the opposite occurring in the "once a week or less" (occasional) and "2-5 times a week" (regular) categories. When comparing drinking status by age, military members reported a much larger percentage of chronic drinkers in the "20-25" categories. Similarly, but to a lesser extent, the military members in the "46-55" category also reported a higher percentage of chronic drinkers than civilians. Consumption patterns by education level were similar for the "More than high school but less than Bachelor's degree" category and especially the "Bachelor's-PhD" category. At the "high school" category, the data indicate more military members are abstainers and chronic drinkers than comparable civilians.

TABLE 4.22

Respondents' Frequency of Consumption of Alcoholic Beverages

Category	Frequency		
	Count	Percentage	Cumulative
Never	74	15.9	15.9
< once every 2-3 mos	58	12.5	28.4
Once every 2-3 mos	36	7.8	36.2
Once per month	36	7.8	44.0
Once every 2-3 wks	43	9.3	53.2
Once per week	61	13.1	66.4
2-3 times per wk	87	18.8	85.1
4-5 times per wk	29	6.3	91.4
Almost every day	26	5.6	97.0
Every day	14	3.0	100.0
TOTAL	464	100.0	

1 missing case

TABLE 4.23

Crosstabulations of Frequency of Alcohol Consumption by Sex,
Age and Education Level
(Percentages)

Category	Frequency of Alcohol Consumption			
	Never	Once per week or less	2-5 times per wk	6 or more times/wk
Target Population				
Military	14.3	49.5	27.5	8.7
Civilian	17.0	51.1	23.4	8.5
Sex				
Male*	15.1 14.6	47.8 46.2	27.7 27.8	9.4 11.4
Female	9.1 19.7	63.6 57.4	22.7 18.0	4.5 4.9
Age				
20-25**	0.0 31.8	50.0 50.0	12.5 13.6	37.5 4.5
26-35	12.5 10.0	55.4 52.0	26.8 28.0	5.4 10.0
36-45	16.2 17.6	47.5 49.4	29.3 24.7	7.1 8.2
46-55	15.8 15.9	42.1 54.5	26.3 20.5	15.8 9.1
56 & above	0.0 20.6	0.0 44.1	0.0 29.4	0.0 5.9
Education				
High school***	66.7 21.7	0.0 56.5	0.0 15.2	33.3 6.5
>HS-<Bach	15.7 21.5	47.1 50.5	29.4 24.7	7.8 3.2
Each-PhD	12.5 12.9	51.6 50.0	27.3 25.0	8.6 12.1

* 1st row in each category-military, 2nd row-civilian.

** includes 2 civilians under 20 years of age.

*** includes 1 civilian with less than high school education.

Intensity of Alcohol Consumption. The frequency of responses to question 45 on the intensity of alcohol consumption by respondents are shown in Table 4.24. Table 4.24 indicates very few of the respondents consume more than three drinks of alcohol per sitting. When assigning the survey response "more than 6 drinks" a value of 9 drinks, the mean number of drinks consumed by reported drinkers in the target population was 2.3.

For comparing the two stratum, responses were summarized into three categories: 1-2 drinks per sitting for light drinkers; 3-4 drinks per sitting for moderate drinkers; and 5 or more drinks per sitting for heavy drinkers. Data from Table 4.25 indicates a higher percentage of civilian personnel tend to be light (73.9% versus 39.5%) and heavy (6.2% versus 4.5%) drinkers whereas more military were moderate drinkers (26% versus 19.9%). Overall, males reported more consumption than females as percentages between the two groups in the moderate and heavy categories were higher for females. Consumption patterns by age were similar for the "36-45" and "46-55" categories with military members reporting slightly more light and moderate drinking and civilians reporting more heavy drinking. Military personnel with more than a high school education but less than a bachelor's degree reported the highest consumption levels. This indicates Air Force enlisted members in the target population tend to consume more per sitting than officers or comparable civilians.

Additional information on several other health practices and areas of health of the target population were collected in the survey. The data were analyzed and results are briefly discussed in Appendix B.

TABLE 4.24

Respondents' Drinks per Sitting of Alcoholic Beverages

Category	Frequency		
	Count	Percentage	Cumulative
Don't drink	77	16.8	16.8
1 drink	117	25.6	42.5
2 drinks	157	34.4	76.8
3 drinks	56	12.3	89.1
4 drinks	29	6.3	95.4
5 drinks	12	2.6	98.0
6 drinks	6	1.3	99.3
8 drinks	1	.2	99.6
More than 8 drinks	2	.4	100.0
TOTAL	457	100.0	

8 missing cases

TABLE 4.25

Crosstabulations of Drinks per Sitting by Subgroup by Sex,
Age and Education Level
(Percentages)

Category	No. of Drinks per Sitting		
	1-2 drinks	3-4 drinks	5 or more drinks
Target Population			
Military	69.5	26.0	4.5
Civilian	73.9	19.9	6.2
Sex			
Male*	67.9 66.7	26.9 23.5	5.2 9.8
Female	80.0 83.9	20.0 15.1	0.0 1.1
Age			
20-25**	50.0 60.0	50.0 40.0	0.0 0.0
26-35	70.0 65.1	22.0 25.6	8.0 9.3
36-45	69.5 68.8	26.8 20.3	3.7 10.9
46-55	78.6 86.5	21.4 9.5	0.0 4.1
56 & above	0.0 77.8	0.0 22.2	0.0 0.0
Education			
High school***	100.0 77.1	0.0 17.1	0.0 5.7
>HS-<Bach	46.5 67.6	41.9 26.8	11.6 5.6
Bach-PhD	78.2 76.9	20.0 16.2	1.8 6.8

* 1st row in each category-military, 2nd row-civilian.

** includes 2 civilians under 20 years of age.

*** includes 1 civilian with less than high school education.

Research Question Two. WHAT IS THE LEVEL OF AWARENESS OF HEALTH PROMOTION EFFORTS AMONG AIR FORCE PERSONNEL?

Survey questions 35 and 57 were designed to provide an indication of how aware of health promotion efforts HQ AFLC personnel are. In May 1985, as part of the emphasis on health promotion at HQ AFLC, two Vitastat Wellness Centers, (commonly referred to as wellness centers), consisting of an automated electronic blood pressure/pulse rate machine, weight scale, and health and fitness information board, were placed in high-traffic areas for use by all interested personnel. The Vitastat Wellness Centers allow individuals the opportunity to personally monitor their vital signs on a regular basis and read/pick up current health promotion information and literature. As a measure of respondents' awareness of HQ AFLC health promotion efforts, question 35 asked "Are you familiar with the wellness centers?" 72.9 percent of the respondents responded "Yes". The second question used to answer Research Question Two investigated respondents' awareness of base wide health promotion efforts. On 31 May 1986, the Wright-Patterson Medical Center held its annual Health Fair. The event was open to all employees and their family members and was well publicized in the base newspaper (8:33; 34:33). To measure HQ AFLC personnel's awareness of the Health Fair, question 57 asked "Were you aware of the Air Force sponsored Health Fair held at the Kittyhawk Recreation Center on 31 May 1986?" Despite its publicity, only 34.4 percent of the respondents were

aware of the health fair. The results of these two questions indicate that Air Force employees are moderately aware of health promotion efforts in the workplace but have a relatively low awareness of activities outside the workplace. These results also suggest work site health promotion efforts may be more effective at getting employees involved in their own health than those promoted primarily through published media.

Research Question Three. HOW DO AIR FORCE EMPLOYEES RECEIVE HEALTH PROMOTION/HEALTH RELATED INFORMATION?

Survey question 54 was used to answer this research question by asking respondents to choose the main source of the health related information they receive. Table 4.26 shows that magazines are the primary source of health related information for respondents. Ten of the respondents who marked "Other", stated that two or more of the sources listed were equally important. When these "Other" responses were included, the data revealed that approximately three fourths of the target population receive their information mainly from the popular media--television, radio, newspapers and magazines. Bulletin boards at worksites and pamphlets picked up by the respondents ranked a distant fourth with 7.7 percent of the target population. Of the 32 "Other" responses, 11 cited books and professional journals as their main source of health information while six respondents reported their spouses, identified as doctors or nurses, as the main source of their health information.

TABLE 4.26

Respondents' Main Source of Health Related Information

Category	Frequency		
	Count	Percentage	Cumulative
Television/radio	101	21.7	21.7
Newspaper	64	13.8	35.5
Magazines	174	37.4	72.9
Bulletin bd/pamphlets	36	7.7	80.6
Friends	17	3.7	84.3
Doctor/Med Center	34	7.3	91.6
Other	32	6.9	98.5
Don't receive any	7	1.5	100.0
TOTAL	465	100.0	

"Other" Responses

Count	Comment
11	Books and professional journals
10	Two or more responses equally important
6	Spouse
2	Diet clubs/weight loss programs
1	Product labels
1	Health insurance booklets
1	Work

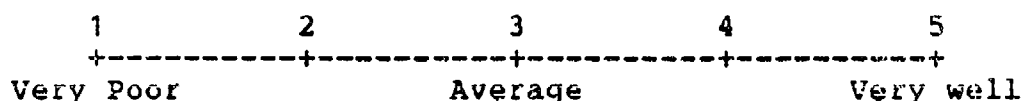
Research Question Four. WHAT IS THE PERCEIVED
USEFULNESS OF AIR FORCE HEALTH PROMOTION EFFORTS BY MILITARY
AND CIVILIAN PERSONNEL?

Respondents' answers to questions 52 and 53 were used to answer Research Question Four. Question 52 asked respondents "How much health information do you receive from the Air Force compared to the amount you would like to receive" and provided them with responses on a Likert scale ranging from 1, corresponding with "Not enough", to 5, corresponding with "Too much" as shown below.

1	2	3	4	5
+-----+-----+-----+-----+				
Not enough		Just right		Too much

Responses were analyzed first by assigning "Not enough" the value of 1, "Just right" the value of 3 and "Too much" the value of 5. Those selecting the interim responses to the left and right of "Just right" were assigned the values of 2 and 4, respectively. Next the value assigned to each response was multiplied by the number of appropriate respondents and the grand total was divided by 462 (the total number of responses to question 52) to yield a number representing the mean of the target population. Using this method, the mean response to question 52 was 2.1 which suggests respondents do not feel they are getting as much health information from the Air Force as they would like. When comparing responses between the two subgroups in the

target population almost twice the percentage of civilians (40.4%) as military felt they were not getting enough health information from the Air Force. This disparity between the two groups was reinforced by the responses to survey question 53 and by the many comments provided by respondents. Question 53 asked respondents "How well does the Air Force do in providing positive and constructive support for people who are attempting to improve their health practices?" Using the same method as the one explained for question 52 above, a mean response for the target population was calculated using the following scale:



In this scale "Very poor" has a value of 1, "Average" a value of 3, etc. Based on this, the overall mean response was 2.8. When civilian responses were compared to military, the civilian mean response was 2.7 where the military mean response was 2.9. Although not a large difference in means, many more civilians (22.6%) than military (13.7%) rated Air Force support as "Very poor". As mentioned above, many comments on this issue were provided by respondents, especially civilians (See Appendix C for a reprint of selected actual comments and suggestions provided by respondents). The majority of the comments concerning health promotion efforts from civilians are best summarized by the following

two remarks: "I feel the Air Force for the most part does a good job at providing support for military people to exercise, maintain weight, etc.; however, ...the Air Force needs to do more for the civilian employee" and "If fitness and health are important for military, they are equally important for civilians. However, I feel that any program that comes out will favor the military." Nineteen separate comments from civilian respondents mentioned this perception of bias towards military members.

Comments from military members concerning health promotion efforts were directed more towards specific areas of health and fitness, such as the annual aerobics run, the sale of tobacco products in government commissaries, and military physicals. There were fifteen critical comments by military members on the annual aerobics test. All comments suggested the current program did not provide positive and constructive support to Air Force members. In fact, many felt the program discourages people from improving their fitness because they feel the standards are too low. (See Appendix C). In explaining their response of "very poor" to question 53, three military members stated the sale of tobacco products at substantially reduced prices at the commissary does not help in encouraging current smokers to stop their habit. In separate critiques, one respondent stated "it [the sale of tax-free, reduced price tobacco products at commissaries] sends a signal to the current military smoker and the young, easily influenced troop that

the Air Force approves of smoking by its members". Three rated officers expressed concerns that the Air Force is only interested in the health of its flyers, colonels and generals (all of whom receive annual physicals). The three felt that civilians are, for the most part, ignored from health programs overall and non-rated military members, who receive a physical once every five years, are not adequately provided with sufficient, periodic health evaluations.

Overall comments received from both military and civilian respondents suggest that a sizeable portion feel the Air Force is not truly serious about physical fitness, preventive medicine or health promotion.

Research Question Five. WHAT ARE AIR FORCE EMPLOYEES' ATTITUDES TOWARDS HEALTH AS IT RELATES TO WORK?

Responses to questions 22, 23, 29, 31, 32, 37, 38, 55 and 56 were used to answer this research question. Each of the 9 questions asked the respondents about a particular aspect of health in the workplace and, depending on the scale used, to record their level of agreement/disagreement or the percentage of all Air Force jobs impacted by the question. Because all but two of these questions were analyzed using the same technique, the analysis approach is described first followed by a discussion of the results.

Analysis. Six of the questions (23, 29, 32, 37, 38 and 56) asked respondents to select one response from a seven point Likert scale. To compute an overall rating for each question, the seven possible responses were assigned

the following values:

Strongly agree	1
Moderately agree	2
Agree	3
Don't know/Uncertain	4
Disagree	5
Moderately disagree	6
Strongly disagree	7

Next, the number of responses to each response was multiplied by the value assigned to it and then the grand total was divided by the number of respondents who answered the question. Using this method, a calculated rating of 3.6 to 4.5 (Don't know/uncertain) for any of these six questions proves to be inconclusive in that respondents do not show definite feelings of agreement or disagreement. Table 4.27 shows the calculated ratings and mode and median responses for questions 23, 29, 32, 37, 38 and 56. Question 22 was similar in content to the six questions above; however, a five point Likert scale was used for responses to this question. The methodology used to evaluate question 22 was identical to that described above with the 5 responses receiving the following values:

Yes, it's been proven beyond reasonable doubt	1
Yes, the evidence seems to indicate it	2
Don't know/uncertain	3
No, the evidence is not convincing	4
No, this is totally unproven	5

The total response rating calculated for question 22 is shown in Table 4.27. When using these values, an overall rating of 2.6 to 3.5 for this question (Don't

know/uncertain) will prove to be inconclusive. The responses to questions 31 and 55 provided quantitative values and thus required no computation for an overall rating.

Discussion. Each of the nine questions were evaluated separately and are discussed below one at a time. Question 22 asked respondents "Do you believe it has been proven that cigarette smoking is dangerous to health?" Using the methodology described above for the five point scale, the total response rating for this question was 1.4 indicating strong agreement with the response "Yes, it's been proven beyond reasonable doubt." Of the 464 respondents, 315 (67.9%) selected this response.

Question 23 addressed the issue of smoking in the workplace. Respondents were asked to indicate their level of agreement with the statement "Smoking should be prohibited in an employee's immediate work area." The rating calculated for this question was 2.6 (on a 7 point scale) suggesting moderate agreement with the statement. 348 of the respondents (74.8%) answered "strongly agree", "moderately agree" or "agree" while 109 (23.4%) answered "strongly disagree", "moderately disagree" or "disagree". Considering 81 percent of the respondents (375 individuals) were reported non-smokers (question 15), results of question 23 indicate a portion of these people, possibly ex-smokers, do not feel smoking should be prohibited in the work area.

Many respondents, both smokers and nonsmokers, provided comments to question 23. Several smokers stated they would

spend a considerable amount of time in smoking areas if they had to go to one outside the immediate work area every time they lit a cigarette. The majority of the comments however, were from the 81 percent of the target population who are nonsmokers. Eleven respondents felt that a ban on smoking in the immediate work area would go largely ignored because of the number of individuals who currently ignore no smoking signs/rules in designated nonsmoking areas (rest rooms, cafeterias and conference rooms were popular examples). Six individuals expressed strong feelings about banning cigar and/or pipe smoking in the workplace due to what they perceive as its more offensive smell than cigarette smoke.

Question 29 solicited respondents' opinions on the statement "body weight is a good indicator of whether or not a person is physically fit". A rating of 3.5 for this question indicates respondents agree with this statement. Of all the survey questions used to answer Research Question Five, where respondents indicated agreement with work-related health statements, this one showed the lowest degree of agreement.

Table 4.27

Mode and Median Responses and Ratings to Attitude Questions

7 Point Scale Question No.	Mode Response	Median Response	Rating
23.	1	2	2.6
29.	3	3	3.5
32.	3	3	2.9
37.	3	3	3.4
38.	4	4	4.2
56.	1	2	2.4
5 Point Scale Question No.			
22.	1	1	1.4

Question 31 asked "In how many jobs in the Air Force (military and civilian) is being in good physical condition an important factor in job performance?" The highest percentage of respondents (37.4%) felt that 100 percent of Air Force jobs require the person to be in good physical condition to perform his/her job. The majority (57.1%) of the respondents felt that at least 75 percent of Air Force jobs require good physical condition. 64 of the respondents (13.9%) responded "Don't know/uncertain" on this question. The overall results of this question indicate that the respondents believe only a small portion of Air Force jobs require good physical fitness on the part of the employee.

Question 32 asked the respondents about physical fitness as it relates to their job performance. The total response rating of "Being in good physical shape is an important factor in performing my job" was 2.9 which implies the target population moderately agrees with the statement. The majority of the respondents (61.3%) were almost equally split between the 2 responses of "strongly agree" (30.2%) and "agree" (31.1%).

Questions 37 and 38 investigated respondents' use of the Vitastat Wellness Centers and its relationship to their health. Both questions asked respondents to indicate their level of agreement with a statement about the subsequent effect of the use of the wellness centers. Question 37 stated "Use of the wellness center has increased my interest in my health." Of the 341 individuals who responded to this

question, by doing so indicating they have used the center in one capacity or another, the largest percentage (40.2%) marked "agree". A total response rating of 3.4 was computed and indicates the target population generally tend to agree that the use of the wellness centers has indeed resulted in an increased interest in their own health. Question 38 investigated whether or not individuals felt use of the wellness centers resulted in a change to their health habits. Overall, responses to the statement "Use of the wellness center has resulted in a change to my health habits" proved inconclusive, as indicated by a rating of 4.2. Only one third of the respondents agreed (all three levels) with this statement while 56.1 percent disagreed (all three levels). A large number of people (10.6%) were uncertain about the effect use of the wellness center has on their health habits.

Questions 55 and 56 were very similar to questions 31 and 32 in that they measured the respondents beliefs about the role one's health plays in job performance. They were different in that question 31 and 32 were more specific and only addressed one aspect of health--physical fitness. Question 55 asked "In how many jobs in the Air Force (military and civilian) is being in good overall health an important factor in job performance?" As expected, the responses to this question indicate a higher percentage of people thought good overall health was a more important factor in job performance than only good physical fitness: 47.0 per-

cent thought good overall health was an important factor for 100 percent of Air Force jobs versus only 37.4 percent for good physical condition. The majority of respondents (60.0%) felt good overall health was an important factor in job performance in at least 90 percent of Air Force jobs. 11.3 percent of the respondents answered "Don't know/uncertain" and many commented that they just didn't have the experience/knowledge to make an assessment of the role health has in job performance in the Air Force.

Results of question 56 were similar to those of question 55 in that respondents felt good overall health is more important to job performance than only good physical fitness. A rating of 2.4 on this question indicated respondents moderately agreed on the issue that good overall health is an important factor in performing their job.

Research Question Six. WHAT HEALTH PROMOTION ACTIVITIES/EFFORTS ARE AIR FORCE EMPLOYEES INTERESTED IN ATTENDING/PARTICIPATING IN?

Throughout most of the survey respondents were asked specific questions concerning their health practices and their thoughts and beliefs about health in general and in the workplace. To get an indication of the interest level that Air Force employees have about participating in efforts and activities under the guise of health promotion, several questions asked the respondents if they would be interested in attending a program (e.g. smoking cessation program) or if they would like to receive information on specific health

topics (e.g. how to manage stress). In addition, two of these questions assess 1) the participation rate of a highly publicized health promotion activity and 2) the utilization of the health monitoring equipment at HQ AFLC. The survey questions used to answer the final research question in this study were 21, 30, and 58-70.

Question 21 was directed toward respondents who are current smokers and asked "If you now smoke, would you be interested in attending a program that would help you quit smoking?" Of the 88 reported cigarette smokers (survey question 15) and 27 reported pipe smokers (survey question 16), a total of only 101 smokers responded to this question (see frequency table in Appendix D). 42 of the 101 respondents indicated they would like to participate in a Air Force-sponsored program to help them quit smoking. Of these 42, 23 are civilians. Nine of the 101 smokers answered they would like to participate in a civilian-sponsored program. The remaining 50 smokers indicated they were not interested in attending a smoking cessation class because they 1) were not interested in quitting (18.8%), 2) have tried before and haven't been able to stop (5.9%), or 3) can stop on their own (24.8%).

Question 30 was similar to question 21 but instead of being directed towards smokers it was directed towards those respondents who think of themselves as being overweight. The question asked "If you are now overweight, would you be interested in a program that would help you lose weight?"

Of the 454 respondents who answered this question, 253 (55.7%) thought of themselves as being overweight--indicated by responding to answers 2 through 6 on this question (see Appendix D). The highest percentage of overweight respondents (40.7%)--103 out of the 253--indicated they would be interested in an Air Force-sponsored weight loss program: 78 were civilians and 25 military. Fewer of the overweight respondents (16.2%), predominantly civilians, reported they would rather participate in an off-base, privately-sponsored program. A small percentage (7.5%) of the overweight respondents indicated they were not interested in losing weight (4.3%) or had tried to lose weight many times but have always been successful (3.2%). There were however, a substantial portion (35.6%) who were not interested in a weight loss program because they felt they could lose excess pounds on their own. The overall results of this question indicate 1) the majority of the respondents consider themselves overweight and 2) the majority of those who are overweight and wish to join a weight-loss program desire assistance from the Air Force.

Question 36 was designed to determine the participation rate at the wellness centers' health monitoring equipment (automatic blood pressure machine and weight scale) by HQ AFLC personnel. Of the 339 respondents that were familiar with the wellness centers (question 35), 316 or 93.2 percent reported they used one or both of the monitoring machines.

Question 58 asked individuals who were aware of the

1986 Health Fair if they participated in any of its activities. Of those who indicated they were aware of the Health Fair, only 6.3% participated in the actual event.

Questions 59 and 60 focused on the number of people certified in cardiopulmonary resuscitation (CPR) and the interest level in taking CPR training. 64 of the 460 respondents (13.9%) who answered question 59, "Are you currently certified in CPR?", reported they were. When asked "Would you be interested in attending a CPR training class?" in question 60, 76.7 percent of the respondents (319) indicated either they would like to or were uncertain. 15 of the individuals who in question 59 reported current certification commented they would like/need to take the annual CPR retraining classes.

The last ten survey questions used to answer Research Question Six, 61 through 70, were designed to measure respondents' interest level in 1) participating in specific, health promotion activities and 2) receiving health promotion information on selected topics. Table 4.28 lists the questions and the percentage of respondents, military and civilian, who marked "Yes" to each one (e.g. 26.6 percent of the total respondents indicated they would like to join a weight management support group where 20.7 percent who responded "Yes" were civilian and 5.9 percent military). As shown in the table, respondents were most interested in receiving information on ways to alleviate personal problems that are possibly work induced--stress and lower back pain--

and having their fitness level tested. The areas of least interest to the entire target population were smoking cessation class, due largely to the high percentage of non-smokers in the group, and information on Acquired Immune Deficiency Syndrome (AIDS).

Summary

Chapter IV has discussed in detail the analysis and results of this study. The response rate and demographic characteristics of the target population were presented and answers to each of the six research questions were explained. The final conclusions of this research and recommendations will be made in Chapter V.

Table 4.28

"Yes" Responses to Questions 61-70

Question	Percent of Total Respondents		
	Civ	Mil	Total
61. Join weight management support group?	20.7	5.9	26.6
62. Enroll in smoking cessation class?	6.2	3.8	10.0
63. Take part in health risk assessment program?	31.0	16.0	47.0
64. Have fitness level tested?	40.8	25.1	65.9
65. Join exercise program?	29.3	14.0	43.3
66. Information on low salt, low fat, low cholesterol cooking?	30.6	19.2	49.8
67. Information on Acquired Immune Deficiency Syndrome (AIDS)?	15.3	9.5	24.8
68. Information on stress management?	44.8	24.2	69.0
69. Information on the prevention of lower back pain?	37.6	18.8	56.4
70. Information on tips for getting active?	33.9	17.1	51.0

V. Conclusions and Recommendations

Introduction

Several studies have identified certain physical practices as being related to an individual's health status and mortality (1; 2; 4; 25; 38). These studies indicate adoption of six favorable health practices--no smoking, moderate use of alcohol, eating breakfast, adequate rest, sufficient exercise and maintaining a reasonable body weight--has been associated with better health and lower mortality. Additional studies on the promotion, at the worksite, of these and other favorable health practices indicate participants in these promotion programs showed improved physical fitness, decreased absenteeism and turnover, and improved morale and attitude towards work (3; 12; 22; 23).

There have been very few studies to date on the health practices of Air Force personnel. The most recent published study was based on data collected in 1977. Furthermore, these studies have been limited to the investigation of military members only.

This study examined 1) the health practices and 2) the attitudes and perceptions concerning health and health promotion of both military and civilian personnel of a single Air Force organization--Headquarters Air Force Logistics Command (HQ AFLC). Conclusions from this study, written in the context of the research questions as stated in

Chapter I, are presented below.

Research Question One

WHAT ARE THE CURRENT HEALTH PRACTICES OF AIR FORCE MILITARY AND CIVILIAN PERSONNEL AND HOW DO THEY COMPARE WITH EACH OTHER?

Smoking. Overall, only 19 percent of the personnel at HQ AFLC currently smoke cigarettes. A higher percentage of civilians smoke compared to military. The majority of military and civilian smokers smoke one to two packs of cigarettes per day.

Cigar or pipe smoking as well as use of smokeless tobacco among HQ AFLC personnel is much less prevalent than cigarette smoking. A small 5.9 percent of the target population smoke pipes or cigars while even less (2.4%) use smokeless tobacco products. Nearly twice the percentage of military members as civilians use these two forms of tobacco.

Strenuous Exercise. 36 percent of the personnel regularly engage in strenuous physical exercise three or more times per week with military members reporting more strenuous exercise than civilians. Conversely, 31.7 percent of the employees reported little or no regular strenuous physical exercise with almost twice as many civilians as military falling in this category.

Body Weight. Slightly over one half of all HQ AFLC personnel regard themselves as being overweight. When comparing the two groups, fewer military members thought of

themselves as overweight than civilians. More military members viewed themselves as within their desirable weight than civilians while just the opposite was true of those thinking of themselves as underweight.

Hours of Sleep. The average number of hours slept each night by the target population was 6.75 hours. As a group, military members reported fewer hours of sleep than civilians.

Eating Breakfast. HQ AFLC personnel reported eating breakfast an average of 3.85 times per week. The largest difference in health practices between military and civilians was in this category. Military members reported eating breakfast much less often than civilian personnel. Over one half of the military members eat breakfast two or fewer times per week.

Alcohol Consumption. Almost one half of the personnel of HQ AFLC drink alcoholic beverages one or more times per week while 15.9 percent of the workforce were reported non-drinkers. The average consumption of the entire target population was 2.3 drinks per sitting. Although military members reported drinking more frequently than civilians, they also reported less consumption per sitting.

Research Question Two.

WHAT IS THE LEVEL OF AWARENESS OF HEALTH PROMOTION EFFORTS AMONG AIR FORCE PERSONNEL?

Specific health promotion efforts within AFLC were

recognized by almost three-fourths of the employees. A relatively high percentage of the workforce have been exposed to and are aware of the wellness centers in the buildings which they work. However, a much lower percentage of HQ AFLC personnel were aware of the well publicized Health Fair which was held during weekend hours and away from their worksite. There are many possible factors that may affect why employees reported more awareness of the wellness centers than the Health Fair, such as regular exposure of the centers due to their location directly in the work site or the advertisement of the Health Fair in only one media. Nonetheless, the workforce appears to be very much aware of health promotion efforts that are located in the vicinity of employees' day to day activities.

Research Question Three

HOW DO AIR FORCE EMPLOYEES RECEIVE HEALTH PROMOTION/
HEALTH RELATED INFORMATION?

HQ AFLC employees indicated the sources of the health information they receive, in descending order, are magazines, television and radio, newspapers, bulletin boards/pamphlets, their doctors or medical center and friends/family.

Research Question Four

WHAT IS THE PERCEIVED USEFULNESS OF AIR FORCE HEALTH PROMOTION EFFORTS BY MILITARY AND CIVILIAN PERSONNEL?

The perceived usefulness of health promotion efforts by

HQ AFLC personnel can be summarized as sufficient at best. The fact that the target population 1) does not receive as much health related information as it desires and 2) feels that the support provided by the Air Force to individuals who are trying to improve their health is slightly less than average suggests there is room for improvement at both the national and local levels in health promotion efforts. In addition to the mediocre rating given by the aggregate members of the organization, several specific comments by individuals suggest the health promotion efforts of the Air Force are insincere and are principally aimed at and geared towards the military members. This view was shared by many civilian and military members alike. Specific examples of perceived insincerity by mainly military respondents included 1) the continued sale of smoking products at Air Force commissaries and base exchanges, 2) the low annual physical fitness test standards, and 3) the apparent concern for only Air Force members who are flyers and/or who are the rank of colonel or higher.

Two primary concerns expressed by many HQ AFLC military personnel were that health care in the Air Force overall, is oriented towards curing illness rather than preventing it and that a physical checkup once every five years for the majority of Air Force members does not provide adequate health screening.

Perceived bias of Air Force health promotion efforts towards the military members was supported by civilians with

both their lower ratings and numerous critical comments. Both the support and amount of information on health and health promotion provided by the Air Force were perceived as lower by civilians than military. The greatest majority of the written remarks suggested making policies, such as the access to health and exercise facilities and the "allowance" for physical training during duty hours, as equitable to civilians as it is perceived to be for military members.

Research Question Five:

WHAT ARE AIR FORCE EMPLOYEES' ATTITUDES TOWARDS HEALTH AS IT RELATES TO WORK?

HQ AFLC personnel overwhelmingly support the notion that cigarette smoking is dangerous to their health and, accordingly, approximately 75 percent agree that cigarette smoking should be prohibited in the immediate work area. In addition, several employees suggested a ban on pipe and especially cigar smoking in the work area be implemented and enforced along with, if not sooner than, a similar ban on cigarette smoking.

The individuals in the target population were just barely in agreement on the issue of whether body weight is a good indicator of a person's physical fitness. One factor that may have influenced the relatively low level of agreement is that the majority of the respondents view themselves as being overweight.

Overall, beliefs by the personnel of HQ AFLC are that

only a small percentage of jobs in the Air Force, both military and civilian, require good physical fitness on the part of the employee to effectively perform his/her job. However, when the issue of the employee's overall health is presented, the majority of the employees regard this as essential in at least 90 percent of Air Force civilian and military jobs.

HQ AFLC personnel were generally in agreement that good physical fitness is an important factor in the performance of their own jobs. Quite naturally, they were in greater agreement that overall good health is an important factor in effectively performing their own jobs.

The availability and use of a worksite health intervention facility--the wellness centers--by HQ AFLC personnel has raised their interest level in their own health. Although more interested in their own health, these same employees are not sure whether use of the wellness centers has necessarily resulted in any changes to their health habits.

Research Question Six:

WHAT HEALTH PROMOTION ACTIVITIES/EFFORTS ARE AIR FORCE EMPLOYEES INTERESTED IN ATTENDING/PARTICIPATING IN?

The majority of HQ AFLC employees, both civilian and military, who currently smoke cigarettes and are interested in quitting, would like to participate in an Air Force sponsored smoking cessation class. Likewise, the majority

of overweight employees (approximately one half the workforce) who are interested in losing weight, also expressed an interest to participate in an Air Force sponsored weight management program.

Participation in self-monitoring of one's health vital signs was extremely popular among HQ AFLC personnel who were aware of the facilities. Within a year after they were installed, virtually everyone who was cognizant of the wellness centers had used them at one time or another.

Well over half the employees who are not currently certified in cardiopulmonary resuscitation (CPR) desired to attend CPR training classes. Equally numerous are the number of individuals, especially civilians, interested in a health risk assessment program. Nearly two thirds of the HQ AFLC personnel expressed a desire to have their fitness level tested.

Information on stress management was clearly the most popular health promotion item offered to these government employees as almost 70 percent of them expressed interest. Another work related health concern the majority of individuals were interested in learning more about was the prevention of lower back pain. Information on healthful cooking and advice for becoming more active was also of interest to at least one half the personnel at HQ AFLC.

Recommendations for Further Research

Several suggestions for further research naturally arise

from this study and are discussed below. The first recommendation would be to use the data gathered in this study to compare the health practices of HQ AFLC personnel with those of another Air Force organization which may be viewed as having more active jobs, say for example, an operational flying wing or a civil engineering group. This would serve to investigate the possible difference in health status resulting from or partially due to an active Air Force job.

A second related recommendation would be to compare the health practices of HQ AFLC personnel to the current health practices of the U.S. adult population. This would serve as one indication of how the health of DOD employees differs from that of general population.

A third recommendation would be to use the existing data and investigate the signs and strengths of relationships between different health practices and demographic variables such as age, sex and education level.

A final recommendation would be to investigate Air Force employees attitudes and perceptions, in much greater detail than was done in this study, of each separate element of the Air Force Health Promotion Program (i.e., nutrition, physical fitness, etc.) in an effort to identify specific weaknesses and strengths of the program as perceived by recipients.

Conclusion

The primary goal of any organization within the Air

Force, or for that matter the DOD, is to effectively perform its required mission. A secondary goal of an organization is to efficiently perform its mission. People are responsible, in one capacity or another, for performing the tasks necessary for mission accomplishment. To effectively and efficiently perform their required tasks, employees must achieve peak performance. One major factor that affects employee performance is personal health and wellness. Several previously mentioned studies showed that those employees who were in better health had increased productivity, decreased absenteeism, turnover and medical costs, and reported an improvement in overall quality of life. To assess physical wellbeing, other studies have shown a relationship between certain health practices and health status. This study investigated six health practices of Air Force military and civilian personnel and serves as a baseline for assessing the current health status of Air Force and ultimately, DOD employees.

The Air Force Health Promotion Program has as its mission the enhancement of personal performance. It does this by providing an environment whereby employees can acquire the skills and knowledge that promote healthy lifestyle behaviors. Although no conclusions on the effectiveness of Air Force health promotion efforts can be drawn from this study, Air Force employees' perceptions suggest that sincere emphasis on the health and wellness of government employees is lacking. Despite the less than

favorable marks given Air Force health promotion efforts and activities, the current high level interest being paid to health promotion in the DOD, with activities such as the conveneing of a Blue Ribbon Panel on health promotion in the DOD and the release in March 1986 of the new DOD Directive 1010.10, Health Promotion, possibly forbodes a new direction and emphasis on the health and wellness of all DOD employees.

Appendix A: HQ AFLC HEALTH SURVEY

USAF SCN 86-91
Expires 1 Oct 86

INSTRUCTIONS

Use Standard Answer Sheet, AFIT Form 11C, to record your responses. Do not complete any sections at top of answer sheet such as name, social security number, date, etc. Use a #2 pencil for your answers. Pick only one response per question. Answer each question unless directed to do otherwise. Feel free to write on the questionnaire and provide any comments/suggestions on the last page. Return answer sheet and questionnaire in preaddressed envelope.

1. What is your grade?

- | | |
|-------------|----------|
| 1. GM/GS-15 | 6. GS-9 |
| 2. GM/GS-14 | 7. GS-8 |
| 3. GM/GS-13 | 8. GS-7 |
| 4. GS-12 | 9. GS-6 |
| 5. GS-11 | 10. GS-5 |

2. What is your grade? (continued)

- | | |
|---------|---------|
| 1. GS-4 | 3. GS-2 |
| 2. GS-3 | 4. GS-1 |

3. What is your rank?

- | | |
|---------------|----------|
| 1. Colonel | 6. 2Lt |
| 2. Lt Colonel | 7. CMSgt |
| 3. Major | 8. SMSgt |
| 4. Captain | 9. MSgt |
| 5. 1Lt | 10. TSgt |

4. What is your rank? (continued)

- | | |
|-----------|--------|
| 1. SSgt | 4. A1C |
| 2. Sgt | 5. Amn |
| 3. Sr Amn | 6. AB |

5. What is your sex?

- | | |
|---------|-----------|
| 1. Male | 2. Female |
|---------|-----------|

6. What age group are you in?

- | | |
|-------------|-----------------|
| 1. Under 20 | 6. 41-45 |
| 2. 20-25 | 7. 46-50 |
| 3. 26-30 | 8. 51-55 |
| 4. 31-35 | 9. 56-60 |
| 5. 36-40 | 10. 61 or older |

7. What is your total length of service time in military/government?

- | | |
|----------------|---------------------|
| 1. 0-3 years | 6. 21-24 years |
| 2. 4-8 years | 7. 25-28 years |
| 3. 9-12 years | 8. 29 years or more |
| 4. 13-16 years | |
| 5. 17-20 years | |

8. What is the highest level of education you have completed?

1. Less than high school graduate
2. High school
3. Less than two years of education after high school (technical school/college)
4. Associate degree or two years of college
5. More than two years of college but no bachelor's degree
6. Bachelor's degree
7. Master's degree
8. Doctoral degree

9. What is your marital status?

1. Single
2. Married (only once)
3. Separated or divorced and not remarried
4. Divorced and remarried
5. Other

10. Have you been hospitalized in an Air Force/civilian medical treatment facility within the past 5 years?

- | | |
|--------|-------|
| 1. Yes | 2. No |
|--------|-------|

11. Within the past year, how many times did you see or talk to a health care provider (doctor, dentist, physicians assistant, nurse, etc.)? (Do not include social visits; if you were hospitalized, include each hospitalization as only one consultation.)

- | | |
|--------|---------------|
| 1. 0 | 5. 7-9 |
| 2. 1 | 6. 10-12 |
| 3. 2-3 | 7. 13 or more |
| 4. 4-6 | |

12. Do you consult any medical self-care literature/books when you are sick?

- | | |
|----------------------------|---------------------------|
| 1. Yes (go to question 13) | 2. No (go to question 14) |
|----------------------------|---------------------------|

13. If yes, what is the major reason you consult the literature/books?
(check only one answer)

1. Curious about peculiar illness
2. To learn more about different symptoms/ramifications of illness
3. To see if I need to visit a doctor
4. Other (please specify on comment sheet at end of survey)

14. If no, what is the major reason you don't consult medical self-care literature/books?

1. Have never been sick enough to need one
2. Not enough time
3. Whenever I'm sick, I see a doctor
4. Feel I wouldn't understand medical literature
5. Just not interested in reading medical literature
6. Other (please specify on comment sheet)

15. Do you smoke cigarettes?

1. No, I have never smoked cigarettes
2. No, I used to smoke but I quit
3. Yes, less than 1/2 pack per day
4. Yes, between 1/2 to 1 pack per day
5. Yes, between 1 to 2 packs per day
6. Yes, more than two packs per day

16. Do you smoke cigars or a pipe?

1. Yes
2. No

17. Do you use smokeless or chewing tobacco?

1. Yes
2. No

18. If you quit smoking, what is the main reason you quit?

1. Not applicable; I have never smoked or I have not quit
2. My doctor told me to
3. My family/friends encouraged me to
4. I did it for my health
5. It was too expensive
6. Peer pressure/social pressure
7. Other (please specify on comment sheet)

19. If you now smoke, do you want to quit?

1. Not applicable, I have never smoked or I have quit
2. Yes
3. No
4. Uncertain

20. If you now smoke and would like to quit, mark the response that best describes the reason you want to quit?

1. Not applicable; I have never smoked or I have quit or I do not want to quit
2. To improve my health
3. To save money
4. I'm being encouraged by my family/friends
5. My doctor told me to
6. Peer pressure/social pressure
7. Other (please specify on comment sheet)

21. If you now smoke, would you be interested in attending a program that would help you quit smoking?

1. Not applicable; I do not smoke or I have quit
2. No, I'm not interested in trying to stop
3. No, I've tried several times to stop but have always been unsuccessful
4. No, I can stop on my own
5. Yes, and I'd like an Air Force sponsored program
6. Yes, but I'd prefer a civilian sponsored program off-base

22. Do you believe it has been proven that cigarette smoking is dangerous to health?

1. Yes, it's been proven beyond reasonable doubt
2. Yes, the evidence seems to indicate it
3. No, the evidence is not convincing
4. No, this is totally unproven
5. Don't know/uncertain

23. Smoking should be prohibited in an employees' immediate work area.

1. Strongly agree
2. Moderately agree
3. Agree
4. Disagree
5. Moderately disagree
6. Strongly disagree
7. Don't know/uncertain

24. How often do you participate in forms of exercise that require strenuous physical activity for at least 20 minutes per session? (e.g., swimming, running, aerobics, weight lifting, etc.)

1. Almost every day
2. About 3-5 times per week
3. About 1-2 times per week
4. About 1-3 times per month
5. Less than once a month
6. Never or very rarely

25. How often do you participate in forms of exercise that do not require strenuous physical activity? (e.g., golf, bowling, walking, etc.)

1. Almost every day
2. About 3-5 times per week
3. About 1-2 times per week
4. About 1-3 times per month
5. Less than once a month
6. Never or very rarely

26. From the list below, what is the main reason you exercise?

1. Not applicable; I do not exercise
2. I enjoy it
3. To meet Air Force requirements
4. I was told to do so by a physician
5. To control my weight
6. It is necessary for good health
7. Other (please specify on comment sheet)

27. What is the main reason you do not exercise regularly?

1. Not applicable; I do exercise regularly
2. I don't have the time
3. I don't have a place to do it
4. I just don't like it
5. I don't think I need it
6. I have a medical problem which restricts me
7. The facilities I need are not readily available
8. I'm not convinced it helps
9. Other (please specify on comment sheet)

28. How does your present weight compare with what you would like to weigh?

1. 21 or more pounds less
2. 11-20 pounds less
3. 6-10 pounds less
4. Within 5 pounds of what I would like to weigh
5. 6-10 pounds greater
6. 11-20 pounds greater
7. 21 or more pounds greater

29. Body weight is a good indicator of whether or not a person is physically f.t.

1. Strongly agree
2. Moderately agree
3. Agree
4. Disagree
5. Moderately disagree
6. Strongly disagree
7. Don't know/uncertain

30. If you are now overweight, would you be interested in a program that would help you lose weight?

1. Not applicable; I am not overweight
2. No, I am not interested in losing weight
3. No, I have tried several times to lose weight but have always been unsuccessful
4. No, I can lose weight on my own
5. Yes, and I'd like an Air Force sponsored program
6. Yes, but I'd prefer a civilian sponsored program off-base

31. In how many jobs in the Air Force (military and civilian) is being in good physical condition an important factor in job performance?

- | | |
|-----------------|-------------------------|
| 1. 100% | 5. At least 33% |
| 2. At least 90% | 6. Less than 33% |
| 3. At least 75% | 7. None or almost none |
| 4. At least 50% | 8. Don't know/uncertain |

32. Being in good physical shape is an important factor in performing my job.

1. Strongly agree
2. Moderately agree
3. Agree
4. Disagree
5. Moderately disagree
6. Strongly disagree
7. Don't know/uncertain

33. How frequently do you use off-base health facilities, such as health clubs, gyms, racquetball courts, etc.?

1. Never
2. Less than once every 2-3 months
3. Once every 2-3 months
4. About once a month
5. About once every 2-3 weeks
6. Once a week
7. 2-3 times a week
8. 4-5 times a week
9. Almost every day

34. How frequently do you use on-base health facilities, such as base gyms, health clubs, pools, etc?

- | | |
|------------------------------------|---------------------|
| 1. Never | 6. Once a week |
| 2. Less than once every 2-3 months | 7. 2-3 times a week |
| 3. Once every 2-3 months | 8. 4-5 times a week |
| 4. About once a month | 9. Almost every day |
| 5. About once every 2-3 weeks | |

35. Are you familiar with the wellness centers?

1. Yes

2. No

36. Have you ever checked your blood pressure, pulse rate or weight at any of the wellness centers?

1. Yes

2. No (go to question 39)

37. Use of the wellness center has increased my interest in my health.

1. Strongly agree

2. Moderately agree

3. Agree

4. Disagree

5. Moderately disagree

6. Strongly disagree

7. Don't know/uncertain

38. Use of the wellness center has resulted in a change to my health habits.

1. Strongly agree

2. Moderately agree

3. Agree

4. Disagree

5. Moderately disagree

6. Strongly disagree

7. Don't know/uncertain

39. Do you find the health related information posted at the wellness centers worthwhile?

1. Yes

3. Never seen

2. No

40. Based on the following scale, indicate your average health during the last six months.

1	2	3	4	5
+-----+-----+-----+-----+				
Poor	Fair	Average	Good	Excellent

41. When driving or riding in automobiles off-base, how often do you wear seat belts?

1. All the time

2. 75%-99% of the time

3. 25%-74% of the time

4. 10%-24% of the time

5. Less than 10% of the time

42. On the average, how many hours do you usually sleep each night?

- | | |
|----------------------|------------------------|
| 1. Less than 4 hours | 6. 8 hours |
| 2. 4 hours | 7. 9 hours |
| 3. 5 hours | 8. 10 hours |
| 4. 6 hours | 9. 11 hours |
| 5. 7 hours | 10. More than 11 hours |

43. How many times per week do you eat breakfast?

- | | |
|---------------------|---------------------|
| 1. 0 | 5. 4 times per week |
| 2. 1 time per week | 6. 5 times per week |
| 3. 2 times per week | 7. 6 times per week |
| 4. 3 times per week | 8. 7 times per week |

44. How often do you drink alcoholic beverages?

1. Never
2. Less than once every 2-3 months
3. Once every 2 or 3 months
4. About once a month
5. About once every 2 or 3 weeks
6. Once a week
7. 2 or 3 times a week
8. 4 or 5 times a week
9. Almost every day
10. Every day

45. If you drink, how many drinks do you usually consume at one time?
(drinks includes beers, glasses of wine, or mixed drinks)

1. Not applicable; I do not drink
2. 1 drink
3. 2 drinks
4. 3 drinks
5. 4 drinks
6. 5 drinks
7. 6 drinks
8. 7 drinks
9. 8 drinks
10. More than 8 drinks

46. How calorie conscious are you?

1. I pay little or no attention to how many calories I eat
2. I sometimes avoid foods which have too many calories
3. I try to keep a rough count of calories in the food I eat
4. I closely watch and control the number of calories I eat

47. Do you drink lowfat/skim milk or whole milk?

1. I drink lowfat/skim milk only
2. I drink whole milk only
3. I drink both
4. I drink neither

48. Do you eat butter or margarine?

- | | |
|-------------------------|------------------|
| 1. I eat butter only | 3. I eat both |
| 2. I eat margarine only | 4. I eat neither |

49. Have you had your blood tested for cholesterol?

1. No
2. Yes, and results indicated no problem
3. Yes, and results indicated a problem
4. Yes, but don't know what results were
5. Don't remember/not sure

50. Do you try to control the amount of saturated fats (animal fats) you eat?

1. Yes, I control my intake closely .
2. I control my intake somewhat
3. I do not try to control my intake but would know how if I wanted
4. I would not be sure how to control my intake of saturated fats

51. On the whole, how would you rate your knowledge of nutrition?

1. Much better than average
2. Somewhat better than average
3. About average
4. Somewhat worse than average
5. Much worse than average

52. How much health information do you receive from the Air Force compared to the amount you would like to receive?

1	2	3	4	5
+-----+-----+-----+-----+				
Not enough		Just right		Too much

53. How well does the Air Force do in providing positive and constructive support for people who are attempting to improve their health practices?

1	2	3	4	5
+-----+-----+-----+-----+				
Very poor		Average		Very well

54. Which of the following is the main source of the health related information you receive?

1. Television/radio
2. Newspaper
3. Magazines
4. Bulletin board/pamphlets I pick up or read
5. My friends
6. My doctor/Air Force or civilian medical facility
7. Other (please specify on comment sheet)
8. Do not receive any

55. In how many jobs in the Air Force (military and civilian) is being in good overall health an important factor in job performance?

- | | |
|-----------------|-------------------------|
| 1. 100% | 5. At least 33% |
| 2. At least 90% | 6. Less than 33% |
| 3. At least 75% | 7. None or almost none |
| 4. At least 50% | 8. Don't know/uncertain |

56. Being in good overall health is an important factor in performing my job.

1. Strongly agree
2. Moderately agree
3. Agree
4. Disagree
5. Moderately disagree
6. Strongly disagree
7. Don't know/uncertain

57. Were you aware of the Air Force sponsored health fair held at the Kittyhawk Recreation Center on 31 May 1986?

- | | |
|--------|---------------------------|
| 1. Yes | 2. No (go to question 59) |
|--------|---------------------------|

58. Did you participate in any of the activities available at the health fair?

- | | |
|--------|-------|
| 1. Yes | 2. No |
|--------|-------|

59. Are you currently certified in cardiopulmonary resuscitation?

- | | |
|----------------------------|-------|
| 1. Yes (go to question 61) | 2. No |
|----------------------------|-------|

60. Would you be interested in attending a CPR training class?

- | | |
|--------|-------------------------|
| 1. Yes | 3. Uncertain/don't know |
| 2. No | |

Would you like to:

- | | | |
|--|--------|-------|
| 61. Join a weight management support group? | 1. Yes | 2. No |
| 62. Enroll in a smoking cessation class? | 1. Yes | 2. No |
| 63. Take part in a health risk assessment program? | 1. Yes | 2. No |
| 64. Have your fitness level tested? | 1. Yes | 2. No |
| 65. Join an exercise program? | 1. Yes | 2. No |

Would you like information on:

- | | | |
|---|--------|-------|
| 66. Low salt, low fat, low cholesterol cooking? | 1. Yes | 2. No |
| 67. Acquired Immune Deficiency Syndrome (AIDS)
current events? | 1. Yes | 2. No |
| 68. Stress management? | 1. Yes | 2. No |
| 69. The prevention of lower back pain? | 1. Yes | 2. No |
| 70. Tips for getting active? | 1. Yes | 2. No |

COMMENTS

Please provide any comments from previous questions in the space below. Also, feel free to provide any comments or suggestions concerning the Air Force Health Promotion Program. Continue on reverse side if more space is needed.

THANK YOU FOR COMPLETING THIS SURVEY

Appendix B: Supplemental Health Practices

Since this research was a baseline study on 1) Air Force civilian personnel and 2) a select group of both military and civilians with predominately sedentary jobs, additional data on other areas of health and health practices, other than the six mentioned above, were collected from the target population in the HQ AFLC Health Survey. The information garnered from this data helps to describe the target population more fully and should be of value in any future longitudinal studies. The additional data was collected in survey questions 10-14, 18-20, 25-27, 33, 34, 40, 41, and 46-51 and results of each question are briefly discussed below. Frequency tables of responses to these supplemental health and health practices questions are contained in Appendix D.

Questions 10 and 11 dealt with respondents' health as measured by whether the individual was hospitalized in the last five years and by the number of consultations provided to the individual by health practitioners in the last year. These two questions are related in that they attempt to indicate the health problems of the target population requiring medical attention. The data indicate slightly less than 25 percent of the respondents required hospitalization in the last five years. However, when hospitalizations due to childbirth were ignored, this percentage dropped to 21.7 percent. The majority of the respondents visited a health practitioner three or less times within the last year, with the most fre-

quent response being "2 to 3 visits per year".

Questions 12, 13 and 14 were designed to assess the number of individuals who consult medical self-help books and literature when they are ill and to determine their reasons for using/not using these reference documents. The responses to question 12 "Do you consult any medical self-care literature/books when you are sick?" indicate a large percentage (41.3%) do indeed use medical self-care literature/books in one capacity or another when illness prevails. Of the 191 respondents who answered "Yes", to question 12, the largest percentage (65.4%) reported the major reason they confer with medical references when they are sick is because they were interested in learning more about the different symptoms and ramifications of their illness. As expected very few conferred with medical references to see if they needed to visit a doctor. Most of the "Other" responses indicated two or more of the answers provided for this question in the survey were equally applicable. The largest percentage of those who responded to question 14 concerning the major reason for not using the medical reference explained their reason as simply when they're sick they visit a doctor. More than a third (34.4%) of those respondents who do not use medical references reported they have never been sick enough to require the use of medical books/literature. "Other" responses indicated most have spouses or friends, who are doctors, nurses, etc., and therefore don't feel they need to consult medical references

(see Appendix D for a complete list of "Other" responses to this and other questions).

Questions 18, 19 and 20 were designed to identify reasons why individuals quit smoking and for those who currently smoke, reasons for wanting to quit. The results of question 18, which asked "If you quit smoking, what is the main reason you quit?", may be slightly misleading in that more people responded to this question (172) than those who classified themselves as former smokers (159). The greatest percentage of those who quit smoking did so for their health (75.6%). Family and/or friends ranked a distant second with 11.0 percent citing this as the most important reason for quitting. Of the 13 respondents who marked "Other", six felt both encouragement from family and health concerns were equally important in stopping. Three other respondents quit because they felt it was a bad influence on their children.

Results of question 19 show 84 of the 112 respondents who are currently cigarette/cigar/pipe smokers reported they wanted to quit or were uncertain about quitting. This signifies that 75 percent of the current smokers are thinking of quitting their smoking habit. Of those that want to quit or are uncertain, 65.3 percent feel their health is the most important reason for quitting. Not surprising, encouragement from family/friends ranked second again. Both of the "Other" responses to question 20 stated health and at least one other reason for quitting were equally important

(see Appendix D).

Questions 25, 26 and 27 provided supplemental information on the subject of exercise. Responses to question 25, which asked "How often do you participate in forms of exercise that do not require strenuous physical activity?", indicate that over three-fourths of the respondents engage in some form of nonstrenuous exercise (golf, bowling, and walking were examples given in survey) at least once a week. Comparing this to the results of question 24 concerning strenuous physical exercise indicates 18 percent more of the respondents participate regularly in light exercise, at least once a week, than in strenuous exercise. Question 26 asked respondents to select the main reason they exercise. Of the five responses provided in the survey, the two responses selected by the majority of the respondents who exercise were "I enjoy it" (38.9%) and "It is necessary for good health" (35.5%). Of the 16 "Other" responses (Appendix D), 8 felt the response "It is necessary for good health" and one or more other responses were equally important. Four of the respondents marking "Other" mentioned that they exercise primarily for the relaxation/peace of mind/mental relief that comes with regular exercise.

Question 27, which asked "What is the main reason you do not exercise regularly?", was designed with a dual purpose. First, with the response "Not applicable; I do exercise regularly" it provides an indication of how many respondents believe they exercise regularly. No where in the

survey was the word "regularly" defined for the respondents. As a result, with this question they were forced to decide whether they regularly exercise or not. More than half (55.1%) responded that they do exercise regularly and when this figure is compared with the response rate of those individuals participating in non-strenuous exercise 3 or more times per week (53.8%), which is generally accepted as the proper frequency defined by regular physical exercise, then it can be concluded the respondents have an understanding of the frequency required to maintain good health. Second, for those respondents who do not feel they exercise regularly, this question was designed to pinpoint the most prevalent reason. As expected, for those respondents in this category, 45.2 percent reported they don't have the time to exercise regularly. 19.1 percent reported they just don't like to exercise and 7.0 percent said facilities are not available. Ten of the sixteen "Other" responses, which represents 5% of the group of respondents who do not exercise regularly, stated they were just lazy/not motivated to exercise.

Questions 33 and 34 investigated the utilization rate of health facilities, both on-base (Wright Patterson Air Force Base) and off-base. A surprisingly high percentage of respondents reported they never use off-base (57.4%) or on-base (54.8%) facilities. Only 11.6 percent of the target population uses off-base health clubs, gyms, pools, etc. one or more times per week and as expected, the percentage who

use on-base facilities one or more times per week, was higher at 25.1 percent. This indicates that the majority of those individuals who reported exercising regularly, either strenuously or lightly, do their exercising at home or somewhere other than health, exercise or fitness facilities.

Question 40 asked respondents to indicate their average health over the last six months using a Likert-type scale with responses ranging from "poor" to "excellent". 47.1 percent rated their health as "good" and 33.4 percent felt they were in "excellent" health. The mean reported health of the target population was 4.1 where the values 3.0, 4.0 and 5.0 represent "average", "good" and "excellent" health respectively. When comparing the two groups, civilian personnel reported lower average health (3.95) than military (4.28).

Question 41 evaluated the use of seat belts by respondents when driving off-base. This question was designed to indicate the number of people who willingly use these safety devices. The off-base use was selected primarily because use of seat belts on Wright Patterson Air Force Base is required by regulation and is routinely enforced. However, this attempt to solicit unbiased responses was impacted by media reports of imminent enforcement of Ohio's new seat belt law. During the time period when the surveys were mailed out, 23-27 June 1986, and shortly thereafter, local media were encouraging drivers to "buckle up" because Ohio's new law requiring seat belt use for front seat occu-

pants would be enforced at the beginning of July 1986. Results of the survey indicate 70.7 percent of the respondents use their seat belts all the time. The percentage of seat belt users rises to 87.7 percent when those who use them at least 75 percent of the time are included. 10 percent of the respondents reported they use seat belts 24 percent or less of the time. Of all the questions in the survey, this one received the most question-specific comments. The researcher believes this was due to the increased awareness resulting from the numerous reports/warnings issued by the media. Many respondents (10 individuals) checked the response "all the time" and commented "It's the law" or "I have no choice" or "never, until the new law came into effect". Even more of the respondents who chose "less than 10 percent of the time" (11 people) stated thoughts to the effect "I will never use seat belts as long as I drive" or "I don't feel the government should force drivers/passengers to buckle up".

Question 46 through 51 dealt with issues involving respondents' eating habits. Data collected from question 46, "How calorie conscious are you?" indicated 41.5 percent pay little or no attention to the calories they consume, 37.6 percent sometimes avoid foods that are high in calories and only 5.8 percent closely watch the calories they consume. Questions 47 and 48 asked respondents to indicate their consumption of different dairy products such as milk and butter. Results show 50.1 percent drink lowfat/skim

milk only, 12.7 percent drink whole milk only, 20.0 percent drink both and 17.2 percent drink neither. 51.2 percent of the respondents reported they eat margarine and butter, 37.0 percent use margarine only, 6.9 percent consume butter only and 4.9 percent eat neither.

Question 49 examined the number of respondents who have had their blood tested for cholesterol and results of that testing. Of the 463 respondents answering this question, approximately half (227) have not had or cannot remember if they have had their blood tested for cholesterol. 42.3 percent of the target population reported no problems were indicated in their blood tests while 4.8 percent reported problems did show up on their blood tests. Only 3.9 percent of the respondents were not informed as to what the results of their blood tests were.

Question 50 sought to determine the degree and the ability of respondents to determine the degree of consumption of saturated fats. When asked "Do you try to control the amount of saturated fats (animal fats) you eat?", 55.5 percent of the respondents reported they control somewhat their intake of saturated fats while only 12.0 percent control closely their intake. 17.2 percent indicated they know how to control their intake of saturated fats but do not do so. A surprising 15.3 percent responded they would not be sure how to go about controlling their intake of saturated fats.

The last question to gather additional information on

respondents' health and health habits asked them to rate their overall knowledge of nutrition. Possible responses to question 51 ranged from "Much better than average" to "Much worse than average" as shown below.

1. Much better than average
2. Somewhat better than average
3. About average
4. Somewhat worse than average
5. Much worse than average

With "Much better than average" being assigned a value of 1, "Somewhat better than average" being assigned a value of 2, etc., the mean for all respondents was 2.5, which is the mid-way point between "about average" and "somewhat better than average". The largest percentage of respondents (45.6%) indicated they felt their knowledge of nutrition was "about average". As a group, the military members reported slightly lower knowledge of nutrition than civilians (2.41 versus 2.53).

Appendix C: Selected Comments and Suggestions Provided by Respondents

Note: There were over 210 respondents who provided comments and/or suggestions to either specific questions or on the topics of health and health promotion. The following represent a cross section of those actual comments.

"An exercise program at the base gym that is sensitive to working hours (i.e., from 6 am - 7 am or 5 pm - 6 pm) would probably be utilized by a large number of people."

"Since being in the Air Force almost 11 years, I have seen my 'height' measured from 5'11" to 5'9" inches. I have a large body frame and must watch my weight carefully. Therefore, it causes me much 'stress' when my height is lower with each weigh-in."

"The Air Force should raise the standards for physical fitness. I run once a year and pass the test with ease. If the standards were higher I would be forced to exercise more."

One to two percent should be weeded out of the service each year for not being physically fit.

No smoking in the work place.

No price breaks on cigarettes in the BX and don't sell them in the commissary."

"My doctor told me that most of the health nuts out these days do more damage to their health than someone who merely uses common sense in what they eat and drink, avoids overly stressful situations, and exercises with discrimination. In his words "If they're not starving themselves to death, they're running themselves to death!"

"Would like to join a good health program after duty hours."

"If in fact, health is considered a critical part of job performance and especially at higher grade levels in management, suggest mandatory annual physicals be conducted."

"Air Force needs to provide better information on health to all employees plus improve facilities so people can exercise if they wish during lunch or before/after work. Scheduled health tests for employees would help!"

"My impression is that the Air Force does not take physical fitness seriously. Running aerobics once a year is not indicative of one's fitness. The Air Force policy of complete physicals every five years after age 30 should be reversed. Most literature I read says get a check-up regularly. Why is the Air Force different? The Air Force is paying lip service to health and wellness!!"

"I am interested in my health and would like to do whatever is needed to maintain or improve it. I am also interested in any health programs available."

"I am of the opinion more emphasis is placed on the well-being of military rather than civilian. I can understand this, however, it would be nice if the Air Force would do more in helping civilian employees stay healthy. I also find exercise programs geared to the young person. How about helping us golden agers?"

"The two times I used the wellness centers, the B[lood] P[ressure] machine was in error."

"I'm hoping you can provide some of the health classes for civilians, due to the fact there are not enough of them. When I read something it is basically for military. And if you try to get in to one of the health clubs on base, they are always full."

"Your survey seems geared to health information/prevention but in 18 years I've never met an Air Force doctor who will discuss nutrition with me. Example: Six months ago I started experiencing acute stomach pain - WPAFB Medical Center treated me for gout, put a TV camera down my throat gave me a upper and lower GI tests and when they couldn't find anything they implied it was mental and or stress. I specifically asked about diet and received blank stares. A friend mentioned the possibility of milk upsetting my stomach. I cut out dairy products and have had virtually no stomach pain since!"

"I do not approve of the Ohio seat belt law."

"Would like to find a pool open at 0600 hours."

"The Air Force could sponsor some type of structured physical fitness program so that the employees could participate during their lunch hour. This would benefit all concerned."

"How about a Weight Watchers Program in Building 262/266?"

"If the Air Force would stress an eight hour workday so that people who might otherwise be compelled to work longer at the expense of family and self would have time to exercise, relax, etc., that would probably do more overall good for general health status than anything else! I'm afraid "lean and mean" has come to mean "stressed and neglected"! And all the rest of this will go the way of fashion."

"The Air Force makes it very difficult for the active, healthy member who has heavy muscle mass. Unless you are over your max weight you have no means through the Air Force to get your max weight allowance adjusted. Why not permit body fat testing and weight adjustments for those within 10% of their max weight - instead of forcing unhealthy water loss diets before weigh-ins?"

"Strongly support availability of training in CPR, Heimlich maneuver, and other emergency responses. Strongly, support allowing civilian employees to attend such training, engage in exercise (jogging, tennis, aerobics, or whatever) or attend weight control or smoking cessation classes during business hours, in order to take advantage of on-base offerings during convenient hours, without charging annual leave. This would not have to be deducted from the normal 8-hour workday, but could be done in the form of extended lunch period or the sort of time off which the military is allowed. I would work an hour later if I could have an hour of free time for exercise or health training."

"For me, regular exercise does a number of things-reduces stress, raises my fitness level, makes me think more about my weight and thus watch what I eat to some degree. If the exercise is full-court basketball, I enjoy exercising. If the exercise is running 2-3 miles, I don't enjoy the actual running but there is a real sense of satisfaction when done. The Air Force attitude is that its people should be physically fit but try to do it during the duty day and you find that the time necessary to work out is given grudgingly. I take my lunch hour but when you add in time required to drive to and from the gym, dressing and undressing, and in summer, time to cool off, 1 1/2 hours is required."

The Marine Corps is deadly serious about physical fitness. The Army is serious about physical fitness. The Air Force talks a lot about physical fitness."

"I was a distance runner but do not run anymore. I do walk 3.5 miles each day and find it controls weight, relaxes me and I do not suffer all the runners ills. So facts and information on walking (how much-how fast) would be interesting to me. I would also like to know more about proper diet."

"Exercise is good. But until we make it a part of the job (like the Army) it will never work! The people who need it will not do it on their own no matter what the incentive! How about some periodic health camps and allow the troops permissive TDY to attend a couple times a year? Criteria might be our weight (borderline) or poor fitness. Or perhaps mandatory PT three times a week, on the job."

"I would like to have an early morning aerobics class at Dodge Gym. It would be great to have it begin at 6:00 a.m.- 10 mins. warmup; 30 mins. vigorous aerobics; 10 mins. cool-down. Twice weekly would be sufficient e.g. Tuesday/Thursday."

"There is a definite need for more awareness. There are many overweight people (civilian and military) who don't know any better."

"The Air Force talks about exercise and fitness tests, until we make it part of our duty day we are not serious about it. Check the foreign services such as the RAF or RA in U.K. Its part of their work week duties."

"There may be more programs available at WPAFB for civilians than I am aware of."

"The big crime in USAF health field is the T[ender] L[oving] C[are] given to flyers and the indifference toward non-rated military and civilians (below SES). I'm a flyer, so I get good attention. My buddies are ignored from health evaluations on a periodic, systematic basis. We need to recognize the investment we have in them and help them sustain (or achieve) good health habits and care."

"An Air Force program would be great however, all the Air Force Programs I know of are ones such as the Weight Management Program that have administrative punishment requirements if you don't lose a required amount of weight. Many personnel are afraid to participate in an Air Force Weight Program for fear of being identified as over weight. Being put on the Air Force Weight Program is, I repeat, is detrimental to career progression."

"I feel the Air Force does not provide support for "dieting", especially in the work place; however, the Air Force seems to support exercise programs. I would like to see weight control classes in Building 262/266."

"The Air Force provides excellent service but poor self-image and confidence support, i.e., encouragement to get involved in physical fitness programs normally occurs when a person is visually overweight or has an unattractive appearance. The message seems to be you're o.k. as a person only if under your maximum allowable weight."

"The Air Force pays lip service to fitness and preventive medicine--they are nonexistent and, at best a joke. Fitness is a way of life, not a once a year testing program. The Air Force needs to place more emphasis on daily (not yearly) exercise. Additionally, there is no preventive medicine practiced. Requiring a periodic physical once every five years is stupid. They should be given yearly and personnel should be given stress tests (treadmill, EKG) at these physicals. The results would likely identify a number of otherwise unknown problems and would serve to motivate many to exercise more regularly if they were going to get a yearly evaluation of their true physical condition. There is no preventive medicine for dependents, nor does Champus cover preventive medicine. Dependent illness is often times a cause for the service members to lose workdays or be ineffective at work. If we are sincerely interested in the "total force" concept and the Air Force "family", we might take a look at this area too!"

"The Air Force program is more of a UCMJ enforced rather than a positive type/open forum for those with problems. It serves to monitor and not alter attitudes. No open door policy for assistance towards conditioning, weight control, eating habits, diet information and body analysis (i.e. body fat control)."

"I feel the Air Force makes an attempt to provide constructive support, however, it is rarely positive--it's more do it or else--starting from the hospital down to commanders. "Positive" should provide encouragement and motivation for progress--not only criticism for not doing as well as "someone" thinks you should. For instance: cigarettes--if someone has significantly cut down we don't say "that's great, keep it up" we say "well why don't you just quit." Weight--we don't congratulate and encourage weight loss, we only condemn when standards are not met. Some motivation!"

"The Air Force Medical Services needs to take a more active roll to support their verbal statements in support of well-ness--a lot of talk but not much commitment from physicians. They are big on cure but most lax on prevention. Prevention doesn't bring in patients or dollars, thus hard to count for productivity."

"I have benefited greatly from a program at Wright State University called "Total Fitness Lifestyle". The program was extremely well taught and executed. The Air Force should consider this as a prototype to establishing such a program at Wright Patterson. I have continued the principle of this program (especially the exercise portion) at the health club in Building 262. The health club is sorely lacking in good exercise equipment."

"There are some things that I would like to change about my health. Chronic back pain, stress induced fatigue and acne, low stamina etc. However, the way the medical service is presently, you have to be dying to get any attention and I fear a lack of promotability if health issues are raised, especially mental aspects of stress induced problems. Mere literature will not help. Changes in health services and confidentiality are needed to stress prevention at Hospital. Don't treat the symptoms, treat the causes."

"General Meader has been very effective in promoting wellness in the AFLC staff and making the material available to others. My impression of military medicine has been treating illnesses/accidents in lieu of educating the people in appropriate nutrition and physical fitness. It appears to me our real decrease in health care costs will be realized through proper nutrition, physical fitness and preventive medicine. Throughout my Air Force career, I have noticed many people who are constantly ill and their poor nutritional habits suggests this is one of their problems with inadequate physical fitness a close second."

"It is interesting that the Air Force promotes sports for good health but then allows smoking in the work place thus, forcing us to breathe air hazardous to our health"

"I feel the biggest health problem is other individual's smoking. I think individuals should not be allowed to smoke in hallways where others follow their trail of smoke. I feel cigars should be banned in public places--they smell horrible. I am allergic to smoke and have no problems until I am around smokers. Some smokers do not heed 'no smoking' signs (conference rooms and cafeteria especially). As you can tell, I feel strongly about the smoking issue - it's my health too!"

"The Air Force needs to prohibit smokers from fouling the air for others. Many smokers--especially officers from Major up--now ignore "no smoking" signs in rest rooms."

"The smokers should be allowed to smoke in the work place, but the smoke should be controlled where the non-smoker does not have to inhale smoke."

"Regarding smoking, as a 2 pack a day smoker, I would be spending 1/3 of each day in my work area, 1/3 in the designated smoking area and 1/3 walking between the two"

"No one has the right to smoke in an office or room unless everyone in that office or room are smokers. Smoking should be outlawed in government buildings."

"Please place more emphasis on nutrition education."

"Anything in excess is harmful to your health. Good or bad health is inherited through family genes."

"For myself and for many other people I know, learning to manage stress would eliminate or greatly reduce the other problems such as overweight, smoking, drinking, etc."

"Please support and expedite the ban on smoking in all federal facilities. At the very least cigars and pipes must be banned. Are you aware that some allergic reactions to tobacco smoke include swelling of inner membranes of the ear, nose and throat. In severe cases (a closed room with a chain smoker) pressure caused by this swelling can cause permanent damage to the inner ear (including full and permanent hearing loss). Having experienced such mild allergic reactions (headaches, earaches, and total loss of voice), I'm very aware of this threat to my health."

"I had an MI in 1979 followed by by-pass in Feb 1980. I have been to biofeedback through mental health at Robins AFB, jog 3 miles a day, control my weight voluntarily, control diet to low fat, salt, and cholesterol and the only time I have been counseled about this was by the Army when I had surgery. The Air Force doesn't have a program, as far as I am concerned, unless the members take it upon themselves to develop one--we badly need one to prevent poor physical health and then to help afterward. I am rated and was given physicals yearly which didn't deal with stress, diet, etc--which it could (include health counseling and stress testing, etc). My point is I was monitored and not very effectively. What about all those who are nonrated and civilians who basically are not seen for years. My opinion is that I should now be monitored on a mandatory follow-up program. I only receive follow-up at my own initiative. Brooks AFB sends me a survey every few years and I get on my soapbox then also. Not angry--just concerned."

"There should be no smoking enforced in the rest rooms."

"Cigar and pipe smoke are the worst health risks in our office."

Appendix D: Frequency Tables to Selected Survey Questions

Note: numbers may not add due to rounding.

Q10. Have you been hospitalized within the last 5 years?

Response	Frequency	
	Count	Percentage
Yes	114	24.7
No	348	75.3
TOTAL	462	100.0

3 missing cases

Q11. How many times in the last year did you see or talk to a health care provider?

Response	Frequency	
	Count	Percentage
0	39	8.4
1	78	16.9
2-3	167	36.1
4-6	101	21.9
7-9	40	8.7
10-12	19	4.1
13 or more	18	3.9
TOTAL	462	100.0

3 missing cases

Q12. Do you consult medical self-care literature/books when you're sick?

Response	Frequency	
	Count	Percentage
Yes	191	41.3
No	272	58.7
TOTAL	463	100.0

2 missing cases

Q13. What is the major reason you consult self help literature/books?

Response	Frequency	
	Count	Percentage
Curious about illness	37	19.4
Learn about symptoms/ramifications	125	65.4
To see if I need to visit doctor	17	8.9
Other	12	6.3
TOTAL	191	100.0

274 missing cases

"Other" responses:

Count	Comment
5	All three answers apply.
3	To see what preventive measures/medicines are recommended.
2	To find out potential side effects of medicine.
1	"I'm a diabetic and read to improve health."
1	"I like to take care of myself."

Q14. What is the major reason you don't use medical self-care literature/books?

Response	Frequency	
	Count	Percentage
Not sick enough	94	34.6
No time	6	7.2
See doctor when sick	116	42.6
Wouldn't understand medical literature	9	3.3
Not interested	32	11.8
Other	15	5.5
TOTAL	272	100.0

193 missing cases

"Other" responses:

Count	Comment
-----	-----
6	Spouse/friends are doctors, nurses, etc.
2	Doctor has setup personal program.
2	Information provided/available not specific enough.
2	Read literature but prefer professional diagnosis.
1	"I use common sense."
1	"Self care literature cannot diagnose or prescribe necessary relief/cure."
1	"Too much 'read' into self-care information."

Q18. If you quit smoking, what is the major reason you quit?

Response	Frequency	
	Count	Percentage
-----	-----	-----
Told by doctor	2	1.2
Encouraged by friends/family	19	11.0
Did it for my health	130	75.6
Too expensive	3	1.7
Peer/social pressure	5	2.9
Other	13	7.6
TOTAL	172	100.0

59 missing cases
234 Not applicable cases

"Other" responses:

Count	Comment
-----	-----
6	Health and family encouragement equally important.
3	Tired/disgusted with smoking habit.
3	Bad influence for children.
1	"Quit after illness."

Q19. If you now smoke, do you want to quit?

Response	Frequency	
	Count	Percentage
Yes	58	56.3
No	19	18.5
Uncertain	26	25.2
TOTAL	103	100.0

52 missing cases
310 Not applicable cases

Q20. If you now smoke and would like to quit, what is the main reason you want to quit?

Response	Frequency	
	Count	Percentage
To improve health	49	65.3
To save money	6	8.0
Encouraged by family/friends	12	16.0
Told by doctor	1	1.3
Peer/social pressure	5	6.7
Other	2	2.7
TOTAL	75	100.0

70 missing cases
320 Not applicable cases

"Other" responses:

Count	Comment
1	Health and family encouragement equally important.
1	"Health is important but cigarette smoke stinks."

Q21. If you now smoke, would you be interested in attending a program that would help you quit?

Response	Frequency	
	Count	Percentage
No, not interested in stopping	19	18.8
No, have tried to stop but can't	6	5.9
No, can stop on my own	25	24.8
Yes, an Air Force sponsored program	42	41.6
Yes, but prefer a civilian-sponsored program	9	8.9
TOTAL	101	100.0

57 missing cases
307 Not applicable cases

Q25. How often do you participate in nonstrenuous exercise?

Response	Frequency	
	Count	Percentage
Almost every day	155	33.3
3-5 times/week	95	20.4
1-2 times/week	101	21.7
1-3 times/month	60	12.9
Less than once a month	26	5.6
Never/rarely	28	6.0
TOTAL	465	100.0

Q26. What is the main reason you exercise?

Response	Frequency	
	Count	Percentage
Enjoy it	162	38.9
Meet Air Force standards	8	1.9
Told to do so by doctor	7	1.7
To control weight	76	18.2
Necessary for good health	148	35.5
Other	16	3.8
TOTAL	417	100.0

3 missing cases
45 Not applicable cases

"Other" responses:

Count	Comment
-----	-----
8	Two or more answers equally important.
4	Relaxation/peace of mind/mental relief.
2	Result of very active lifestyle.
2	Square dancing.

Q27. What is the main reason you do not exercise regularly?

Response	Frequency	
	Count	Percentage
-----	-----	-----
Don't have the time	90	45.2
Don't have a place to exercise	13	6.5
Don't like to	38	19.1
Don't think I need it	10	5.0
Medical problem restriction	12	6.0
Facilities not readily available	14	7.0
Not convinced it helps	6	3.0
Other	16	8.0
TOTAL	199	100.0

22 missing cases
244 Not applicable cases

"Other" responses:

Count	Comment
-----	-----
10	Lazy/not motivated.
4	Two or more answers equally important.
2	Get plenty of exercise at work while on the job.

Q30. If you are now overweight, would you be interested in a program to help you lose weight?

Response -----	Frequency -----	
	Count -----	Percentage -----
No, not interested in losing weight	11	4.3
No, have tried to loose but can't	8	3.2
No, can loose weight on my own	90	35.6
Yes, an Air Force sponsored program	103	40.7
Yes, but prefer a civilian-sponsored program	41	16.2
TOTAL	<u>253</u>	<u>100.0</u>

57 missing cases
307 Not applicable cases

Q33. How frequently do you use off-base health facilities?

Response -----	Frequency -----	
	Count -----	Percentage -----
Never	267	57.4
Less than once every 2-3 months	81	17.4
Once every 2-3 months	26	5.6
About once per month	22	4.7
Once every 2-3 weeks	15	3.2
Once a week	19	4.1
2-3 times per week	27	5.8
4-5 times per week	5	1.1
Almost every day	3	.6
TOTAL	<u>465</u>	<u>100.0</u>

Q33. How frequently do you use on-base health facilities?

Response	Frequency	
	Count	Percentage
Never	255	55.0
Less than once every 2-3 months	41	8.8
Once every 2-3 months	19	4.1
About once per month	13	2.8
Once every 2-3 weeks	20	4.3
Once a week	26	5.6
2-3 times per week	49	10.6
4-5 times per week	31	6.7
Almost every day	10	2.2
TOTAL	464	100.0

1 missing case

Q40. Indicate your average health during the last six months.

Response	Frequency	
	Count	Percentage
Poor	5	1.1
Fair	16	3.5
Average	69	15.0
Good	217	47.1
Excellent	154	33.4
TOTAL	461	100.0

4 missing cases

Q41. How often do you use seat belts when driving or riding in automobiles off-base?

Response	Frequency	
	Count	Percentage
All the time	328	70.7
75%-99% of the time	79	17.0
25%-74% of the time	16	3.4
10%-24% of the time	11	2.4
Less than 10% of the time	30	6.5
TOTAL	464	100.0

1 missing case

Q46. How calorie conscious are you?

Response	Frequency	
	Count	Percentage
Pay little or no attention to calories	193	41.5
Sometimes avoid foods which have too many calories	175	37.6
Keep a rough count of the calories	70	15.1
Closely watch and control the calories	27	5.8
TOTAL	465	100.0

Q47. Do you drink lowfat/skim milk or whole milk?

Response	Frequency	
	Count	Percentage
Lowfat/skim milk only	233	50.1
Whole milk only	59	12.7
Both	93	20.0
Neither	80	17.2
TOTAL	465	100.0

Q48. Do you eat butter or margarine?

Response	Frequency	
	Count	Percentage
Butter only	32	6.9
Margarine only	172	37.0
Both	238	51.2
Neither	23	4.9
TOTAL	465	100.0

Q49. Have you had your blood tested for cholesterol?

Response	Frequency	
	Count	Percentage
No	188	40.6
Yes, no problem	196	42.3
Yes, problems	22	4.8
Yes, but don't know results	18	3.9
Don't remember/not sure	39	8.4
TOTAL	463	100.0

2 missing cases

Q50. Do you try to control your intake of saturated fats?

Response	Frequency	
	Count	Percentage
I control my intake closely	56	12.0
I control my intake somewhat	258	55.5
I do not try to control my intake, but would know how	80	17.2
Not sure how to control my intake	71	15.3
TOTAL	465	100.0

Q51. How would you rate your knowledge of nutrition.

Response	Frequency	
	Count	Percentage
Much better than average	63	13.5
Somewhat better than average	154	33.1
About average	212	45.6
Somewhat worse than average	32	6.9
Much worse than average	4	.9
TOTAL	465	100.0

Q60. Are you interested in attending a CPR training class?

Response	Frequency	
	Count	Percentage
Yes	223	53.6
No	97	23.3
Uncertain	96	23.1
TOTAL	316	100.0

49 missing cases

Bibliography

1. Belloc, Nedra B. "Relationship of Health Practices and Mortality," Preventive Medicine, 1: 409-421 (August 1972).
2. Belloc, Nedra B. and Lester Breslow. "Relationship of Physical Health Status and Health Practices," Preventive Medicine, 1: 409-421 (August 1972).
3. Blair, Steven N. and others. "A Public Health Intervention Model For Work-Site Health Promotion," Journal of the American Medical Association, 255: 921-926 (February 1986).
4. Breslow, Lester and James E. Enstrom. "Persistence of Health Habits and Their Relationship to Mortality," Preventive Medicine, 9: 469-483 (1980).
5. Brody, Jane. "The Best Workout Might Be At Work," Dayton Daily News, 109: 2-B (2 March 1986).
6. Department of Defense. Health Promotion. DOD Directive 1010.10. Washington: Government Printing Office, 11 March 1986.
7. Department of Health, Education, and Welfare. Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention. DHEW (PHS) Publication No. 79-55071 Washington: Government Printing Office, 1979.
8. "Do Your Health a Favor in May," Skywriter, 27: 33 (2 May 1986).
9. Emory, C. William. Business Research Methods (Third Edition). Homewood IL: Richard D. Irwin, Inc., 1985.
10. "Employee Fitness: Corporate Philosophy For the 1980s," in Health and Fitness: The Corporate View. Madison WI: Athletic Purchasing and Facilities, n.d., 2-4.
11. Goodstadt, M.S. and others. "The Validity of Reported Drug Use: the Randomized Response Technique," International Journal of Addictions, 13: 359-367 (1978).

12. "Here's One Program That Means Business," in Health and Fitness: The Corporate View. Madison WI: Athletic Purchasing and Facilities, n.d., 6-8.
13. Herzlinger, Regina E. and David Calkins. "How Companies Tackle Health Care Costs: Part III," Harvard Business Review, 64: 70-80 (January-February 1986).
14. Hochstim, J.R. and Karen S. Renne. "Reliability of Response in a Sociomedical Population Study," Public Opinion Quarterly, 35: 69-79 (1971).
15. Jenkins, Lt Col James L. "Talking Paper on Health Promotion in the Air Force Medical Service." Talking paper presented to the Blue Ribbon Panel on DOD Health Promotion. AFMSC/SGPH, 24 October 1984.
16. King, SMSgt George W., Chief, Systems Management Branch, Military Personnel Division. Personal interviews. HQ AFLC/DPMS, Wright-Patterson AFB OH, 31 March through 25 April 1986.
17. Labash, Lt Col John D. "Unit History of Consumer Health Promotion Program 1 July-31 December 1985," Report to Headquarters USAF. HQ AFMSC/SGPZ.
18. Leon, Arthur S. "Exercise and Coronary Heart Disease," Hospital Medicine, 68: 38-57 (March 1983).
19. Mealer, BGEN Willard L., AFLC Surgeon. Personal interview. HQ AFLC/SG, Wright-Patterson AFB OH, 14 March 1986.
20. Melzer, J.W. and J.R. Hochstim. "Reliability and Validity of Survey Data on Public Health," Public Health Reports, 85: 1075-1086 (1970).
21. Moore, Pamela V. and Geraldine C. Williamson. "Health Promotion: Evolution of a Concept," Nursing Clinics of North America, 19: 195-206 (June 1984).
22. "New Fitness Data Verifies: Employees Who Exercise are Also More Productive," Athletic Business, 24-30 (December 1984).
23. Peepre, Mall. "The Canadian Employee Fitness and Lifestyle Project," in Health and Fitness: The Corporate View. Madison WI: Athletic Purchasing and Facilities, n.d., 18-24.

24. "Promoting Health/Preventing Disease: Public Health Service Implementation Plans for Attaining the Objectives for the Nation," Public Health Reports, 98: 155-167 (September-October Supplement 1983).
25. Reed, Wornie L. "Physical Health Status as a Consequence of Health Practices," Journal of Community Health, 8: 217-228 (Summer 1983).
26. Schweiker, Richard S. "Strategies for Disease Prevention and Health Promotion in the Department of Health and Human Services," Public Health Reports, 97: 196-198 (May-June 1982).
27. Stunkard A.J. and J. Albaum. "The Accuracy of Self-Reported Weights," American Journal of Clinical Nutrition, 34: 1593-1599 (1981).
28. Sutterer, Maj Wanda H., Deputy Chief, USAF Health Promotion Program Office. Telephone interview. Brooks AFB TX, 8 Jul 1986.
29. "The United States Air Force in Facts and Figures: An Air Force Almanac," Air Force Magazine, 69: (May 1986).
30. USAF, "A Guide for the Development of the Attitude and Opinion Survey," HQ USAF/ACM, Pentagon, Washington DC, October, 1974.
31. USAF, "United States Air Force Health Survey," SCN 77-62, AFMPC/DPMYP, Randolph AFB TX, June 1977.
32. Vogt, T.M. and others. "Expired Air Carbon Monoxide and Serum Thiocyanate as Objective Measures of Cigarette Exposure," American Journal of Public Health, 67: 545-549 (1977).
33. Walker, Weldon J. "Changing U.S. Life Style and Declining Vascular Mortality - A Retrospective," The New England Journal of Medicine, 308: 649-651 (March 1983).
34. "Wellness is in at Health Fair," Skywriter, 27: 33 (30 May 1986).
35. Wells, Karen S., Personnel Systems Manager, Civilian Personnel Division. Personal interviews. HQ AFLC/DPCP, Wright-Patterson AFB OH, 31 March through 6 June 1986.

36. Wetzler, Col Harry P., Chief, Medical Examination Review Board. Telephone interviews. Air Force Academy CO, 28 April through 25 July 1986.
37. Wetzler, Harry P. and David F. Cruess. "Health Practices in United States Air Force Personnel Compared to United States Adult Civilians," Aviation, Space, and Environmental Medicine, 56: 371-375 (April 1985).
38. Wiley, James A. and Terry C. Camacho. "Lifestyle and Future Health: Evidence from the Alameda County Study," Preventive Medicine, 9: 1-21 (1980).

VITA

Captain Russell A. Vogel was born on 10 June 1957 in Cincinnati, Ohio. He graduated from Anderson High School in Cincinnati, Ohio in 1975 and attended the University of Cincinnati, from which he received the degree of Bachelor of Business Administration in August of 1980. On 23 August 1980 he was commissioned a Second Lieutenant in the United States Air Force after having been selected a Reserve Officer Training Corps Distinguished Graduate. Prior to entering the School of Systems and Logistics, Air Force Institute of Technology, he was assigned as a cost analyst with the Reconnaissance, Strike and Electronic Warfare Systems Program Office at WPAFB, Ohio from December 1981 to May 1985. Upon graduation from AFIT he will be assigned to Tactical Air Command Headquarters at Langley AFB, Virginia.

Permanent address: 8571 Prilla Lane
Cincinnati, Ohio 45230

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED			1b. RESTRICTIVE MARKINGS	
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution unlimited.	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE				
4. PERFORMING ORGANIZATION REPORT NUMBER(S) AFIT/GSM/LSA/86S-20			5. MONITORING ORGANIZATION REPORT NUMBER(S)	
6a. NAME OF PERFORMING ORGANIZATION School of Systems and Logistics		6b. OFFICE SYMBOL (If applicable) AFIT/LS	7a. NAME OF MONITORING ORGANIZATION	
6c. ADDRESS (City, State and ZIP Code) Air Force Institute of Technology Wright-Patterson AFB, Ohio 45433-6583			7b. ADDRESS (City, State and ZIP Code)	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION		8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c. ADDRESS (City, State and ZIP Code)			10. SOURCE OF FUNDING NOS.	
11. TITLE (Include Security Classification) See Box 19			PROGRAM ELEMENT NO.	TASK NO.
			PROJECT NO.	WORK UNIT NO.
12. PERSONAL AUTHOR(S) Russell A. Vogel, B.B.A., Capt, USAF				
13a. TYPE OF REPORT MS Thesis	13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT (Yr., Mo., Day) 1986 September	15. PAGE COUNT 160	
16. SUPPLEMENTARY NOTATION				
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD 06	GROUP 05	SUB. GR.	Health, Health Surveys, Public Health Preventive Medicine, Physical Fitness	
19. ABSTRACT (Continue on reverse if necessary and identify by block number)				
Title: AN INVESTIGATION OF THE HEALTH PRACTICES, ATTITUDES, AND PERCEPTIONS OF USAF MILITARY AND CIVILIAN PERSONNEL Thesis Advisor: William A. Mauer, GM-15 Professor of Econometrics/Associate Dean Approved for public release; distribution unlimited. Lynn E. WOLAVER 29 Sep 86 Dean for Research and Professional Development Air Force Institute of Technology (AFIT) Wright-Patterson AFB OH 45433				
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT. ☐ DTIC USERS ☐			21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL William A. Mauer, GM-15		22b. TELEPHONE NUMBER (Include Area Code) 513-255-6857	22c. OFFICE SYMBOL AFIT/LS	

→ This investigation examined the health practices, attitudes and perceptions of Headquarters Air Force Logistics Command military and civilian personnel. Six health practices were studied and comparisons between each group were made. The specific health practices include 1) smoking, 2) eating breakfast, 3) body weight, 4) alcohol consumption, 5) strenuous physical activity and 6) hours of sleep. In addition, employees' attitudes and perceptions concerning Air Force health promotion efforts and activities were measured and reported. Demographic variables of HQ AFLC personnel were also collected and presented. Data collection was accomplished via a survey questionnaire. Questions on health practices, attitudes and perceptions were derived from the 1977 USAF Health Survey and a draft USAF Health Promotion Program questionnaire.

Results of the study concerning health practices indicate fewer military personnel smoke cigarettes than civilian, military members eat breakfast less often than civilians, over one-half of the personnel consider themselves overweight with military members being closer to their ideal weight, alcohol consumption among military members was more frequent but less intense than civilian personnel, military members get more strenuous physical exercise than civilians and civilians get more sleep than military. ←

Results of perceptions and attitudes concerning health promotion in the Air Force indicate that, overall, employees are slightly less than satisfied with Air Force health promotion efforts and suggest more emphasis be placed on health promotion to civilian personnel and more rigorous physical fitness standards be enforced on military members.

Very favorable support of a public health intervention facility, known as the wellness center, was expressed by both military and civilian personnel. Information on several work related health problems, such as stress and lower back pain, were of most interest to employees as was the desire to have their fitness level tested.

END