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Factors influencing health behaviors among active duty Air Force personnel

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ABSTRACT

Background: Individual health behaviors affect whether U.S. Air Force (USAF) service members are fit and ready to deploy.

Purpose: The purpose of this study was to understand health behaviors of USAF members to guide future interventions to reduce cardiovascular risks.

Methods: A qualitative descriptive study was conducted with a purposive sample of 24 active duty USAF participants. Conventional content analysis was used to derive data-driven themes that were compared with the Health Promotion Model (HPM).

Discussion: Participants defined health in a multifactorial way that covered physical, emotional, and spiritual dimensions. The three themes that contributed to participants' health behaviors addressed: "who I am," "what works for me," and the USAF culture. There was a poor fit between findings as expressed by these participants and the HPM.

Conclusion: Although these findings were derived from a sample of USAF participants, the findings have implications for members of other military services. The findings also have relevance for nurses and other providers within the civilian work environments who can promote health and wellness by integrating a client's personal history into a plan for developing and sustaining a healthy lifestyle.

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Introduction

A focus on sustaining health and preventing disease is important in the U.S. Air Force (USAF) to ensure that

active duty men and women are healthy and ready to deploy ([AFI 36-2905, 2013](#)). Of particular concern is the prevention of heart disease, which has been identified as the leading cause of death within the United States ([Murphy, Xu, & Kochanek, 2013](#)). Cardiac-related

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diagnoses have been identified as the primary noninjury cause for critical care transport from deployed settings (Bridges & Evers, 2009). Some cardiovascular risks among military personnel, including the prevalence rates of hypertension and tobacco use, exceed civilian rates despite the availability of comprehensive health care (McGraw, Turner, Stotts, & Dracup, 2008).

Modification of lifestyle behaviors—eating habits, physical activity, weight gain, smoking, and alcohol use—forms the underlying basis for strategies to prevent cardiovascular disease, with benefits demonstrated for cardiovascular mortality, as well as all-cause mortality and quality of life (Lloyd-Jones et al., 2010). According to a 2011 Department of Defense survey of active duty personnel across all military services (Army, Navy, Air Force, Marines, and Coast Guard), 63.6% of active duty members were considered overweight or obese, 37.3% reported using cigarettes or smokeless tobacco in the past 30 days, 36.8% reported less than 150 min of moderate physical activity per week, 34.4% ate less than one serving of vegetables per day, and 10.3% reported being told they had high blood pressure in the last 2 years (Barlas, Higgins, Pflieger, & Diecker, 2013).

In military populations worldwide, cardiovascular risks have modestly improved through physical activity interventions in multiple countries, including Iran (Naghii, Almadadi, & Zarchi, 2011), Finland (Cederberg et al., 2011), and among National Guard members in the United States (Talbot et al., 2011). Although improvements were noted in cardiovascular health, the aforementioned investigators identified the need for tailored interventions to address all facets of lifestyle modification, along with the need to better understand the issues related to health promotion unique to the military population.

The USAF has developed a comprehensive fitness program with specific responsibilities for commanders at all levels and USAF medical units at every location (AFI 36-2906, 2013). In addition to explicit expectations that all USAF military members maintain appropriate fitness levels at all times and guidance about developing a formal fitness plan for each military unit, the fitness program also directs the administration of a required fitness assessment for all members. The assessment consists of four components: (a) the waist circumference measurement, (b) the number of push-ups completed in 1 min, (c) the number of sit-ups completed in 1 min, and (d) a timed 1.5-mile run. Each element of the fitness assessment is scored, producing a total score that can range from 0 to 100, with defined minimum (or maximum) standards in each element based on sex and age. Until 2013, the USAF fitness assessment was completed annually. Then, the process was modified to have assessments completed every 6 months, unless the service member achieved a total score of 90 or higher (AFI 36-2906). As part of the fitness program, each USAF unit (consisting of approximately 25 to 300 individuals) has a designated

unit fitness program manager that assists the commander with administering the fitness program.

Because of the importance of fitness and health within the USAF, the primary aim of this study was to identify factors that influence the lifestyle health behaviors of USAF active duty military members. A secondary aim of this analysis was to compare these factors to the elements of the Health Promotion Model (HPM).

The HPM is a widely accepted model for developing lifestyle prevention interventions based on understanding how decisions about health behaviors are made (Pender, Murdaugh, & Parsons, 2011). Social cognitive theory and expectancy-value theory serve as foundations for the HPM. The HPM focuses on the internal and external influences of an individual's health-promoting behaviors. Internal influences consist of individual characteristics—such as biological, psychological, and sociocultural factors—and previous experiences with similar behaviors. External influences consist of interpersonal (e.g., family and peers) and situational (e.g., physical environment) factors that affect a person's cognition and attitude toward a specific health-promoting behavior. In the HPM framework, personal characteristics and past experiences influence a person's commitment to engaging in health-promoting behaviors. Subsequently, through perceived benefits and barriers of action, self-efficacy, activity-related affect, and social and physical support, this commitment to a plan results in the performance or avoidance of the desired health-promoting behavior (Pender et al., 2011).

Methods

A qualitative descriptive design (Sandelowski, 2000; 2010) was used to guide the identification of factors that influence the lifestyle health behaviors of active duty military members in the USAF. Although findings from qualitative description yield a portrayal of participant experiences that is interpretively less complex, the findings can bring "to light fresh perspectives from participants" (Kearney, 2001, p. 147). The ultimate goal of this study was to use the participants' perspectives to develop the foundation of a lifestyle modification program appropriate for the USAF population.

Sample and Setting

Following Institutional Review Board approval, the research was conducted at Travis Air Force Base (AFB) which is located in Northern California, midway between San Francisco and Sacramento. There are >26,000 personnel assigned to Travis AFB, >7,000 of whom are active duty members of the military (60th Air Mobility Wing Office of Public Affairs, 2013). The two inclusion criteria for participation were (a)

currently serving as an active duty member of the USAF and (b) having experienced an assignment to more than one military base. The latter inclusion criterion was chosen to allow respondents to reflect on their experiences beyond a single military base. Any personnel who had a prior cardiac event (e.g., heart attack, stroke, cardiac surgery), were younger than 21 years, pregnant, or in a prisoner status were excluded from the study.

Maximum variation purposeful sampling was used to enroll participants to achieve heterogeneity and variation related to the primary dimension of interest, hypertension (Patton, 2002). Along with the presence and absence of hypertension, other sampling criteria included race/ethnicity (i.e., white, black, or other), officer or enlisted status (a broad indicator of socio-economic status), and age. These sampling criteria were purposefully selected because of their potential role in cardiovascular risk behaviors and to include information-rich cases that could help us understand health behaviors among the active duty USAF population. For example, in an earlier study of active duty USAF personnel, it was identified that black service members were more than twice as likely to have a diagnosis of hypertension, despite having equal access to wellness programs and health care within the military (Hatzfeld, LaVeist, & Gaston-Johansson, 2012), and demonstrated better participation rates in preventive health care appointments compared with their white counterparts (Hatzfeld & Gaston-Johansson, 2010).

Recruitment was accomplished using three approaches to provide information about the study to active duty members: (a) a series of three e-mails sent by the unit fitness program managers over a 3-month period, (b) word of mouth, and (c) snowball recruitment. After several weeks of recruitment efforts, the principal investigator (first author) identified that military members of officer rank younger than 35 years with hypertension had not been screened for participation. After consulting with the population health office at the David Grant USAF Medical Center at Travis AFB, it was learned that only three officers younger than 35 years with a diagnosis of hypertension were stationed at Travis AFB. Consistent with the approved Institutional Review Board protocol, the team did not attempt to identify these individuals but rather enrolled three additional participants in other strata, achieving the desired sample size of 24.

Each participant was offered a \$10 gift card for their participation in the study. In accordance with USAF policy, however, members were required to have approval for "off-duty employment" to accept the gift card. Of the 24 participants, eight elected to complete the process for off-duty employment and thus received the gift card.

Data Collection

Along with a short demographic form developed specifically for this study, data were collected via face-to-face

interviews in a neutral place away from the participants' work sites. The principal investigator conducted all of the interviews using semistructured interview questions based on the HPM (Pender et al., 2011; Table 1). Each interview, lasting between 60 and 90 min, was audio recorded and then transcribed verbatim by a professional transcriptionist. The interviewer recorded field notes after each session to reflect nonverbal cues or impressions that were not captured on the audio recording. The principal investigator proofed each transcript to ensure the accuracy of the transcription (Poland, 1995). An audit trail was maintained throughout the data collection and analysis to create a record of decisions (Rodgers & Cowles, 1993).

Data Analysis

Although the interview questions were developed according to the HPM, conventional content analysis was used to discover data-driven themes (Hsieh & Shannon, 2005). The analysis was conducted by a team comprised of one active duty USAF member, one retired USAF member, a retired Army member, and an academic researcher with expertise in health promotion who had not been in the military. All data first were open coded by two members of the research team (first and last authors) until consensus was achieved on the codes. Matrices were then created to compare codes using the purposeful sampling criteria as well as marital status, parenthood, shift work, gender, region of the country where the participants spent their childhood, and other relevant criteria that were identified in the data. Job type was not requested from the participants, although some indicated the type of work they did as part of the interview (e.g., hospital staff, pilot, aircraft mechanic). Regardless of job type, however, all participants were members of the USAF and expected to meet the same USAF fitness standards.

The codes were grouped into themes; the themes were reviewed and confirmed by the entire research team. Differences of opinion were few; these were discussed until agreement was achieved about the interpretations. The team discussions provided a diversity of input that contributed to the validity of the themes. Subsequently, the research team compared the final themes to the main elements of the HPM to identify factors that influenced health behaviors among active duty USAF members and to see how the findings fit the existing HPM model.

Findings

As reflected by the demographics in Table 2, the 24 participants in this study were heterogeneous in terms of hypertension status as well as race, age, and rank, with women comprising 42% of the sample. Four themes were identified from the data. The first theme was an unexpected finding reflecting a broad definition

Table 1 – Interview Questions with Key Elements of the Health Promotion Model

Key Elements	Questions
Predisposing factors Sociocultural factors	What eating habits did you learn while you were growing up? – What would a typical meal be like for you as a child? – Can you describe a favorite family dish or treat you remember from your childhood (before entering the military)?
Sociocultural factors	What exercise habits did you learn while you were growing up? – What was your favorite activity as a child? – Do you remember an adult figure participating in exercise or a sport while you were growing up?
Activity-related affect/ perceived self-efficacy	How easy is it to make changes in your daily routine? – Can you describe a recent experience when you changed your daily routine? – Is there something you have tried to change that you have not been able to do?
Benefits of action	If you were to change anything in your life to be healthier, what would it be? Why? – Why do you think it is important to be healthier? – Who cares whether you are healthier or not?
Benefits of action	What effect do eating habits have on your career? – Do you know of anyone with really good (or really bad) eating habits? – Has that affected their career?
Reinforcing factors Interpersonal influences	How would you describe the health habits of the people around you? – When you and a friend/spouse go out to dinner, what do you usually order? – Can you describe an activity you enjoy with friends or family?
Situational influences	What have you learned in the military about health habits? – How has your view of “healthy living” changed since you entered the Air Force? – Can you describe a recent “health message” you have seen or heard?
Challenging factors Barriers to action	What do you think are the top three reasons individuals do not change their lifestyle to be healthier? – What has been your biggest challenge to improving your eating or exercise habits? – What kinds of struggles have you seen in your work center from people trying to exercise or eat healthier?

of health from the perspective of the study participants. The remaining three themes corresponded with factors that contributed to participants' health behaviors: (a) the military (USAF) culture, (b) “what it takes to be healthy,” and (c) “knowing oneself.” Another unexpected discovery was the poor fit between the findings from these active duty USAF participants and the HPM.

Health as Defined by the Participants

There was considerable variability across participants regarding their definition of health. Among the most

frequently noted attributes of health were the presence of exercise, proper eating, sufficient sleep, and a spiritual connection and the absence of smoking, excessive stress, and excessive alcohol and caffeine consumption. As noted in Table 1, exercise and eating habits were integrated as part of the interview questions. Efforts to manage stress, get sufficient sleep, smoking status, and the use of caffeine and alcohol were participant-initiated ideas commonly referenced when describing healthy or unhealthy examples in their own life or in the lives of others. Spirituality was most often mentioned as an important element of health when

Table 2 – Demographic Characteristics of Participants (N = 24)

Characteristics	N = 24 (%)
Race	
Caucasian	7 (29)
Black/African American	7 (29)
Other	10 (42)
Age, years	
31–35	12 (50)
>35	12 (50)
Rank	
Enlisted	14 (58)
Officer	10 (42)
Hypertension status	
Hypertensive	9 (38)
Not hypertensive	15 (63)
Gender	
Male	14 (58)
Female	10 (42)

participants were asked about the reasons they felt that it was important to make lifestyle changes to be healthier. One participant described this as “if you’re not getting what you need spiritually,...that’s going to throw off your equilibrium in your life.”

A universally held perception was that the required USAF physical fitness test did not measure health nor was it a key contributor to health. Rather, the fitness test was viewed as an employment requirement, and often a source of unhealthy behaviors either because of last-minute preparation (e.g., attempting to lose weight rapidly), or because achieving a passing score was believed to validate poor lifestyle choices such as smoking or a high-fat diet. One participant mused “I’ll tell you a lot of the people that right now have excellent scores that I know are heavy drinkers and heavy smokers.” Many participants also mentioned the stress associated with attaining a passing score to remain on active duty and maintain their employment, which they felt was unhealthy. One participant summarized it this way “every time I take that physical training test, I’m stressed out about it.... It’s probably not good for your weight either if you’re stressed out.”

Factors Contributing to Health Behaviors

There were three major factors identified by the participants that contributed to their decisions about health behaviors. These were often mentioned within the context of how the participants approached obstacles that might have made it difficult to continue a health behavior or changes made to incorporate healthy behaviors into their everyday life.

The USAF Culture

Although participants did not view the required fitness assessment as a measure of health, a few did point out that the new USAF fitness standard of scoring 90% to avoid testing in 6 months could be a source of

motivation to achieve a higher score on the fitness assessment. By contrast, other participants believed that the required fitness assessment had negative effects. Paramount among the negative view of the fitness assessment was the stress caused from meeting the new, more rigid fitness standards because meeting or not meeting the standards had serious career implications. In addition, participants said required USAF health standards such as annual health evaluations (e.g., blood tests, body weight), in combination with fitness standards such as waist circumference measurements, influenced health behaviors although not always in an enduring or positive way. For instance, one participant reported that coworkers were “starving themselves” before having their waist measured to meet the fitness standard. Another stated that he would “lose a stripe” (be demoted and receive less pay) if he did not pass his next fitness test.

Another factor unique to the military culture is the tradition of conducting mandatory group physical training several times a week. Group physical training usually consists of an organized exercise or sport activity that can be done by an entire unit. The USAF Fitness Program ([AFI 36-2906, 2013](#)) contains specific recommendations for this group physical training program. In general, it includes meeting as a group in a large field, starting with a warm-up activity (e.g., push-ups and sit-ups) and then an aerobic activity (e.g., running as a large group, soccer, volleyball, or completing an “obstacle course”). Participants who preferred engaging in solo physical activity disliked the group physical activity, although it was mandatory and their attendance was required. Some participants believed that group physical activity might have a negative impact on some unit members, depending on the pace set for the group activity and the fitness level of the individual member. For example, one participant was convinced that a running injury resulted from “trying to keep up with my coworkers.” Negative effects were not just from doing too much but also from doing too little as expressed by a participant who stated “my workout suffers because group physical training is not challenging.” Although group physical activity training might contribute to unit morale, an important feature of the USAF culture, on its own it did not seem to contribute to participants’ efforts to maintain a healthy lifestyle.

Active duty Air Force personnel who were in leadership positions had an impact on participants’ health behaviors by explicitly and implicitly modeling health behavior. The importance of leaders setting a personal example was mentioned consistently by participants in leadership positions, as well as junior enlisted members, and summarized by one participant who noted “you need to lead by example, especially the fit test.” Ways for leaders to show good health behaviors included their involvement in regular physical activity, eating healthfully, not using tobacco, maintaining a healthy weight, performing well on the required fitness test, and leading unit fitness activities. Explicit values,

including policies allowing physical activity during work time and voicing support for health behaviors in personal conversations and during formal unit functions, were also mentioned as ways leaders might influence health behaviors. Participants mentioned comparing their leaders' explicit values to their implicit values—noticing whether fitness policies were honored during busy work times, if leadership meetings were held in restaurants offering less healthy food choices, and even what actions were taken when a unit member failed a fitness test. One participant observed, "...there's a huge culture of drinking [alcohol]. But then they'll say, 'Oh, it's not good to drink too much.' ...it's kind of a double standard."

Leaders also were identified as having an important role related to participants' stress levels at work. In some cases, participants described this in positive ways by leaders supporting subordinates' decisions about managing personnel and their work schedules, but most provided negative examples of how leaders increased stress levels through punitive action. Leaders' decisions viewed as punitive and contributing to an individual's stress included requiring mandatory weekend fitness programs, failing to explore unit members' personal challenges at home, and being dismissive about contributions made by unit members in support of the mission, such as when work hours were extended to 10- and 12-hr days or when individuals had to work on weekends rather than having time off. One participant reported a "very stressful" time that required working for 30 days straight because of a lack of staffing and felt that the issue was not addressed by the leadership until after there was a crisis.

Finally, the transient nature of military life also was identified as having an important influence on health behaviors, including deployments to remote locations. In an unexpected finding, some participants described deployments as a benefit to their health habits because, in the absence of family, they had more time available to exercise and the ability to select healthier options at the dining facility. By contrast, and more in keeping with researcher expectations, other participants (even those from the same deployment location) described deployments as challenging their ability to sustain healthy behaviors. Specific challenges included the availability of tempting unhealthy food options at the dining hall (e.g., french fries, desserts). In particular, these participants commented that their feelings of stress and loneliness contributed to poor food choices during deployments. The postdeployment stress and reintegration process was also seen as sometimes leading to the resumption of unhealthy habits (e.g., smoking, alcohol use) upon their return, especially if tobacco products or alcohol was not readily available during deployment, or they had been able to stop or decrease these behaviors before or during deployment.

Moving to a new duty location and temporary assignments to another location, although normative

features of the USAF culture, also were identified as potential challenges to health behaviors. Transitions precipitated by permanently moving to a new base not only upset individual routines but also changed family routines that needed to be re-established once the move was completed. During a temporary assignment, respondents stated that it was often difficult to prepare or plan healthy meals. They also stated that it was difficult to find exercise time or a workout option that they preferred because work hours were often longer and less flexible. Although these transitions were described as having a negative influence on exercise and eating behaviors, they were also mentioned as a point in time when a military member was able to make a lasting change from unhealthy to healthier habits, or at least more critically evaluate their usual routines.

"Who I Am"

Knowledge of oneself influenced health behaviors. Habits related to eating and exercising as well as health values learned from childhood influenced participants' day-to-day lifestyle decisions that were both healthy and unhealthy. A few of the participants described childhood meals that comprised a lot of fruits and vegetables and limited amounts of processed or fast food. More often, respondents described childhood meals as "home cooked," although on exploring what that term meant, this commonly included fried foods, heavy sauces, and "vegetables out of a can," which they acknowledged were not healthy. Most of the participants talked about being engaged in sports and outdoor activities as children, with several mentioning parents who were actively involved and modeling an active lifestyle. A few participants described adults in their childhood as not being engaged in any activities. Other participants noted that during their childhood they were instructed to stay indoors for safety reasons.

Reflecting on their childhood experiences, some participants identified health habits that continued in adulthood such as regularly eating breakfast or continuing to play a sport. Still, a majority of participants said "I'm different now," based on their choice to consciously change unhealthy childhood behaviors to healthier lifestyle behaviors as adults. Awareness and becoming conscious of choices were identified by participants as important to making changes in support of better health.

The knowledge of "who I am" extended beyond their personal history; it also included an awareness of personal preferences such as specific foods and activities they enjoyed or did not enjoy and family circumstances (such as spousal preferences and childcare options) that influenced their lifestyle choices. Some participants expressed feeling comfortable in the gym, whereas others were decidedly uncomfortable in the gym setting. This discomfort was attributed to several things, including not being sure how to use the equipment and feeling incompetent in front of others,

especially those that appeared to be “experts.” One female participant said that she felt the gym was a “male-dominated setting” with people “watching what you do.” Participants also identified other personal challenges to pursuing healthy behaviors. These included having a special needs child at home, being the parent to young children, being the head of a single parent household, and rotating work schedules.

“What Works for Me”

Although knowing oneself was an important element of health behavior choices, the process of figuring out what activities and choices best matched participants’ personal preferences was critical to the success in making healthy choices or following a healthy lifestyle. Participants who were successful were able to take their knowledge about personal preferences and their individual circumstances and use it to determine “what works for me.” For instance, some participants were aware of their preference to engage in physical activity alone, and that awareness of “what works for me” was used to ensure that an appropriate physical activity (e.g., running) was incorporated into their daily routine, without letting an imposed, structured physical activity “format” like a group exercise program drive their engagement.

When individual circumstances prevented participants from exercising, those who were successful with health-promoting behaviors were able to figure out a way to circumvent deterrents to keep healthy habits into their routines. For instance, one participant described changing a workout routine to the early morning to support a request for family time in the evening. Another participant reported not being “a morning person” and deliberately scheduled workout times after work. Some participants who did not like the gym environment mentioned finding other ways to engage in enjoyable physical activity including personal workouts at home or running outdoors; a few participants enjoyed spending time with their spouse or family on outdoor hikes.

Like physical activity, food choices were also personal choices. Several of the participants reported completely eliminating unhealthy foods from their diet, such as sodas, sweets, or white rice, and intentionally adding healthier foods such as oatmeal and vegetables, although their family or friends continued with their usual food choices. A few other participants mentioned a process of discovery that included learning new ways to prepare foods in collaboration with a spouse or an older child, such as steaming vegetables and flavoring with different spices. Another process of discovery identified by participants was recognizing that “eating without thinking” was sometimes a problem, and they found ways to address that specifically in their eating patterns. Others mentioned incorporating a “cheat day” to stay on track with their healthy eating routine, which often involved a favorite meal or other craving such as a “large steak” or fried foods. Some participants mentioned personal sleep

habits were important to their health, whereas others gave a personal testimony that regular physical activity improved their stress level and the way they felt.

Not all participants were successful at finding what worked for them, even when knowing their own personal preferences and limitations. One participant talked about finally attending a scheduled exercise class for 3 weeks in a row after a year of trying, but with a young child, rotating work shifts, and other competing priorities, had missed the last few classes and felt it was very hard to maintain that routine. Another participant voiced a spouse’s frustration and ongoing unhappiness over a resolution to exercise before work and attempts to plan family activities outdoors. Still, another participant talked about struggling with trying to eat healthy and how a wellness class did not provide healthy food options that were desirable. This particular individual left discouraged and unsure of what changes to implement. Although not explicitly stated, the participants who were unsuccessful at finding what worked for them expressed a sense of hopelessness that they were unable to find a way to incorporate desired health behaviors into their lives.

The Fit between the Findings and the HPM

When the study findings were compared with the HPM (Pender et al., 2011), it was evident that the themes identified from the USAF participants did not fit well with concepts used in the HPM. Although personal factors, an important concept in the HPM, influenced participants’ approaches to engaging in health-promoting behaviors, these factors did not translate directly into a committed plan of action. In addition, the HPM’s *prior-related behavior* concept had little influence on participants’ current health behaviors. For instance, most participants reported that their childhood health behaviors had little or no bearing on their current health behaviors. Pender’s concept of situational influences was partially identified by participants, although the USAF culture, military policies, and standards had little impact on their engagement in health-promoting behaviors; the process of integrating these policies and standards into daily life was not fully captured by the HPM. Most importantly, the process of discovering “who I am” and “what works for me” was not reflected in the HPM.

Discussion

The findings from this study provide an important perspective into understanding the factors that influence health behaviors of active duty USAF members. The USAF Culture had both positive and negative influences on health choices. Moreover, active duty USAF members had a unique way of defining health that includes physical, emotional, and spiritual

dimensions. The themes reflecting “who I am” and “what works for me” were important factors influencing decisions made about health behaviors. The HPM, although widely accepted as a foundation for health promoting activities, was not a good match with the health behavior choices expressed by the study’s sample of active duty USAF personnel.

It was anticipated that the USAF Culture would influence health behaviors, particularly the formal fitness program that addresses requirements for fitness assessments and the development of a fitness plan for each unit (AFI 36-2906, 2013). The findings from this study provide additional detail that can be used to further define the successful implementation of this fitness program and reinforce good health behaviors, including specific actions by leaders at all levels and the influence of transition points such as deployments, permanent moves to new assignments, and temporary duty. The most surprising aspect was the personal nature of health behaviors, even among military members who are generally perceived to be well disciplined and standardized across the service. Although discipline and standardization prevail in the training and operational environments, military members understand that each person still maintains their own personal identity. Knowing oneself—both “who I am” and “what works for me”—was the critical component of making healthy lifestyle choices.

Although the HPM has been widely used to develop lifestyle modification programs (Tomey & Alligood, 2006) and it formed the basis of the questions guiding the interviews, it is noteworthy that concepts from the HPM were not clearly reflected in the data from active duty USAF personnel. Although many of the “personal factors” matched well with the HPM, including childhood activities and eating habits, they were not clearly supported as factors influencing health behaviors in this sample. A study of health promotion behaviors among military women used a survey grounded on the HPM theoretical model and found that only 33% of the total variance was explained by HPM factors (Agazio & Buckley, 2010). This finding is consistent with a recent meta-analysis of multiple social cognitive theories (including the HPM), in which the authors concluded that only 33% of the variance in participating in regular physical activity could be explained by a theoretical model (Plotnikoff, Costigan, Karunamuni, & Lubans, 2013). Based on existing evidence and the findings from this study, the HPM and other social cognitive theories may not adequately address all factors that influence health behaviors, particularly for active duty military personnel.

The process of self-discovery mentioned by participants most clearly aligns with Newman’s (1997) theory of Health as Expanding Consciousness, which has been applied to a patient’s reaction to a health crisis, such as spinal cord injury or cancer diagnosis. Although this theory has been examined within the context of women’s behavioral changes to maintain weight loss (Berry, 2004), there has been little evidence that Newman’s theory has been used to develop programs or

approaches to encourage behavioral changes, especially in a military unique population. The findings of this study suggest that Newman’s work may be a valuable resource for future health promoting activities and could be superior to existing social cognitive theories for understanding healthy lifestyle behaviors in a military population.

The key finding that personal identity is associated with fitness and health behaviors suggests that health promotion efforts in the military must be tailored to meet individual needs by helping USAF personnel discover “who they are” and “what works for them.” Training and awareness about the importance of individual discovery can be incorporated into military training and orientation curriculum at multiple points throughout an USAF member’s career. The findings from this study offer a useful framework for military nurses and leaders as they seek appropriate interventions to more specifically reduce cardiovascular risk behaviors. On an individual level, nurses can best promote health among military members by integrating their personal history (“who I am”) and preferences (“what works for me”) into a tailored lifestyle modification plan to sustain healthy behaviors over the long term.

The Air Force is currently moving away from maintaining centralized health and wellness facilities and focusing on developing a “culture of health” (Stock, 2014). The insights provided by this study indicate that this process of creating a culture of health should consider that USAF members may approach lifestyle changes very differently and on a very personal level. Traditional large-scale, impersonal interventions offered in the military for weight loss and fitness need to be replaced with programs that take a person’s history and preferences into consideration. From a policy perspective, this study also suggests that each USAF base should have a cadre of trained personnel able to provide tailorable interventions to help individuals begin—and successfully maintain—personal health and fitness goals. The policy implications of this study have been summarized in Table 3.

The results of this study, although reflecting a sample of USAF members, have further implications to other services and civilian workplace health promotion programs, all of which are focused on improving the health of a defined population. A meta-analysis of workplace health programs identified a relatively small impact on health measures but demonstrated effectiveness for younger workers (Rongen, Robroek, van Lenthe, & Burdorf, 2013). Although this same analysis determined that the inclusion of counseling sessions in an intervention was not associated with the success of a workplace health promotion program, the intent and actual activities covered by individual counseling sessions were not well described nor homogenous. The present study of USAF personnel, however, suggests that individualized assistance to help workers incorporate health into their daily life is a critical component to any health promotion plan—regardless of the format.

Table 3 – Policy Implications

Key Study Findings	Implications for Policy
• Personal identity is associated with fitness and health behaviors	Health promotion efforts must be tailororable for each participant and provide time and resources to identify and integrate personal choices.
• Specific actions by leaders can influence health behaviors	Positive reinforcement of health behaviors in the workplace is essential from leaders at all levels, through explicit policies and implicit actions.
• Transition points can contribute to new lifestyle changes	Temporary and permanent transitions in life and career should be leveraged to introduce positive lifestyle choices.
• Health is a process of self-discovery	Efforts to improve health must allow participants the ability to explore their personal limitations and preferences to integrate health behaviors.

There are limitations to this study that should be considered. First, the data collection consisted of a single interview that did not allow for further reflection by the participants on the topics that were discussed. Although participants were provided the questions in advance, it is unclear how much thought was invested by participants in considering the questions before the interview. Second, many of the participants were already actively participating in programs offered by the USAF Health and Wellness Center or were working at a medical facility on the base. Although every active duty USAF member assigned to the base received information about the study and was invited to participate, it is possible that individuals who were already aware of the importance of healthy behaviors were more likely to participate in the study. Finally, this study was accomplished at a single military base, and responses may not represent the entire USAF environment. To resolve this logistical barrier, the inclusion criteria required that participants must have been stationed at more than one base, although it remains possible that their responses were most influenced by their more recent experiences.

Despite study limitations, the diversity of responses and varied levels of success with incorporating healthy lifestyle choices into their daily lives suggest that participants reflected a broad perspective of the active duty USAF population and demonstrated the wide variation in personal experiences and histories. The ability to explore their personal journey with health behaviors capitalizes on the strengths of the qualitative methodology and provides a valuable perspective that can inform future policies and health promoting efforts.

Conclusions

As a whole, the active duty USAF force is strong and capable, and it is also evident that military men and women have diverse personal backgrounds that influence health behaviors. As found in this study, a significant element that must be incorporated into any lifestyle modification program, particularly among active duty USAF members, is the importance of understanding one's self and how to fully integrate recommended health behaviors into one's daily life. Although these findings were derived from a sample of USAF participants, the findings have implications for members of other military services and relevance for nurses and other providers within the civilian work environments who can promote health and wellness by integrating personal history and preferences into a tailored lifestyle modification plan to sustain healthy behaviors over the long term.

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