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Use of Social Cognitive Theory to Understand Veterans' Postservice Physical Activity Behavior

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This is to certify that the doctoral dissertation by

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2017

Abstract

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MS, California University of Pennsylvania, 2008

BBA, American InterContinental University, 2007

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

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Abstract

The health of the veteran population within the United States has become a matter of ever-increasing concern, and many individuals who have attained veteran status are experiencing health issues following their discharge from the military. Despite such concerns, there are often not enough resources available to assist these individuals to the degree necessary in an expedient manner. The purpose of this case study was to use social cognitive theory to understand the physical activity of veterans following their time in service. Through the use of social cognitive theory, this study explored the thoughts, perceptions, and behaviors of 11 veterans to determine how their physical fitness levels were affected following their time in the service. Data were collected by interview over the course of a 1-month period by visiting the U.S. Department of Veterans Affairs hospital a minimum of 3 days per week and a content analysis of interview transcripts led to the presented results. Results indicated that expectations of physical activity were realistic post service, and self-efficacy and self-control levels were high. Veterans indicated the beneficence of physical activity as a means of promoting overall wellbeing; however, paticipants also indicated dissatisfaction with the available options to them through the U.S. Department of Veterans Affairs. The results provided clear direction as to the steps that can be taken to work to increase the physical activity levels of veterans. Potential social change implications resulting from the study could lead to improvements in understanding of veteran health statuses.

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Dedication

I would like to acknowledge the help and support of my committee members, family (Parents Robert V. Miller and Mildred E. Miller and Son Sebastian R. Lin), friends, mentors (Dr. Robert A. Sloan), and coworkers, for without their ever-present and willing ear to listen to my challenges, their continued willingness to tolerate me throughout this learning adventure, their understanding of my situation along continued encouragement and guidance, I would not have been able to complete this work.

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I would like to dedicate this work to my fellow service members, veterans, and those who never made it back. Special remembrance are for Dr. Frederick C. Hatfield, Sgt. Byron W. Norwood and Cpl. Brian Oliveira.

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Chapter 1: Introduction to the Study

Introduction

The veteran population experiences a notable difference regarding health status, health behaviors, and overall quality of life following their transition to retired or discharged status (Hoerster et al., 2012). The U.S. Department of Veterans Affairs (VA) is tasked with working to assist this population, though interventions have had mixed results at best, with many such programs not providing the anticipated results (Dahn et al., 2011). The absence of interventions with documented success compounds the matter of ensuring that the veteran population of the United States is receiving the appropriate level of care.

The health of the veteran population within the United States is a matter of ever-increasing concern, and a great many individuals who have attained veteran status are experiencing health issues at this time (Hoge et al., 2014; Reeves, Parker, & Konkle-Parker, 2016; White et al., 2016). Despite such concerns, there are often not enough resources available to assist these individuals to the degree necessary and in an expedient manner (Hoge et al., 2014; Reeves et al., 2016; White et al., 2016). An appropriate theoretical framework that can account for the physical fitness requirements of active duty service in comparison to the average activity levels of veterans can inform health improvements provided to this group of individuals. Using social cognitive theory (Bandura, 1977, 1986, 1989), and taking into account the different health ratings and physical fitness levels required of those in an active duty status in comparison to the average health levels of the veteran population, will provide additional insight into the

health improvements that could be made in the overall field of care provided to this group of individuals. The purpose of this qualitative case study was to use social cognitive theory to predict physical activity behaviors of veterans following their time in service. With the situation analyzed from this perspective, it is possible that the VA could design interventions for this specific population that will afford better results than previous interventions.

Background

Service members are required by policy to maintain certain body composition and physical fitness standards while in active or reserve duty status; however, during and after the transition to retiree or veteran status, these standards are no longer enforced. The U.S. Department of Defense (DoD) has an overarching directive indicating that each component of service is to provide coordination and support of physical fitness and body fat programs for the specific branch of service in which the standardized maximum body fat for males is 26%, and females is 36%, though the actual physical fitness standards are under the purview of the specific branch (Bedno, Urban, Boivin, & Cowan, 2014; Castillo et al., 2010). When comparing the active duty population to veterans who have returned to civilian life, research has shown that veterans have poorer health and health behaviors, indicating the necessity for better interventions and prevention (Hoerster et al., 2012).

The VA has received results of mixed levels of effectiveness with weight loss and management, while at the same time has been shown as more effective than no intervention at all (Dahn et al., 2011). While there are no specific physical body

composition or physical fitness standards for retiree and veteran status populations once transitioned, there are DoD and Veteran Health Administration (VHA) clinical practice guidelines that are attempts to bridge the gaps in obesity and weight management (VA, 2017). When examining instances of both the clinical practices and the VA Move! weight management programs, there is a gap of knowledge when it comes to applying social cognitive theories in physical activity and weight management practices (Locatelli, Sohn, Spring, Hadi, & Weaver, 2012).

Problem Statement

Weight gain decreases the overall quality of life for U.S. military veterans while increasing the financial burden carried by taxpayers each year (Shen et al., 2009). Health risks that can occur as a result of obesity include coronary heart disease, high blood pressure (Callahan, 2009), strokes, Type 2 diabetes (Joseph et al., 2016), abnormal blood fats, metabolic syndromes, cancer, osteoarthritis, sleep apnea, obesity hypoventilation syndrome (Klingaman, Viverito, Medoff, Hoffmann, & Goldberg, 2014), reproductive issues, gallstones, periodontal disease, mitochondrial abnormalities, inflammatory diseases, and fatty liver disease (Xia et al., 2016). Although these are not the only illnesses that can occur as a result of obesity, they are some of the most common, and the presence of these conditions can increase the need for additional medical care and treatment, which in turn increases the costs of the VA, the funding for which stems from taxpayer dollars.

While a member of the military is classified as either active duty or reserve status, he or she is required to pass physical fitness assessments and maintain certain weight and

body composition standards. These standards help determine whether such individuals can fulfill their duties while serving the country. If military personnel are unable to meet the standards set forth by the DoD and their specific branch of the military, these individuals must separate from the service. These standards have minimal variations between branches and departments of the military. The standards for the U.S. Air Force, Army, Navy, and Marine Corps are relatively similar, regarding both assessments and standards, as defined in the next paragraph (Grosso, 2013).

The DoD maintains standards that are not dissimilar from those used in the U.S. Air Force, the Army, Navy, and the Marines (Grosso, 2013). These standards require that active and reserve duty personnel perform a minimum number of push-ups and sit-ups as a means of demonstrating their muscular endurance; that they engage in cardiovascular assessments consisting of walking and running exercises; and that they engage in body fat measurements (Grosso, 2013). Body fat is typically measured via the measurement of the abdominal circumference (Grosso, 2013; Odierno, 2013). Cardiovascular assessments will vary from department to department, with certain branches of the military requiring active or reserve duty personnel to engage in cycling, running, swimming, or other similar cardiovascular assessments as a means of ascertaining their fitness for duty (Conway, 2008). The Marine Corps measures muscular endurance through the use of pull-ups, sit-ups, and running activities, and it conducts circumference-based measurements as a means of determining the body fat composition of the individual, allowing for the determination as to whether he or she will fail or pass the body weight standards (Conway, 2008; Ferguson, 2011). After an individual is no longer in either

active or reserve duty status, such examinations are no longer a requirement. There is no longer a requirement to engage in physical fitness activities or to adhere to strict weight standards, which results in many veterans experiencing a significant increase in weight following their active service with their respective branch of the military (Koepsell, Littman, & Forsberg, 2012). Changes in body weight, waist circumference, cardiovascular activity, or other health changes may have a significant effect on the overall fitness of retired duty or individuals of veteran status. To this end, the purpose of this study was to identify how the thoughts, perceptions, and behaviors of veterans can affect or influence their levels of physical fitness following their transition to reserve status, discharge, or retirement using Bandura's (1977, 1986, 1989) social cognitive theory.

Purpose of the Study

The purpose of the qualitative case study was to use social cognitive theory (Bandura, 1977, 1986, 1989) to understand physical activity behaviors of veterans following their time in service. The application of this theory to this problem framed the study of specific constructs, including expectations and self-efficacy in performing regular physical activity, goal setting in the performance of a regular physical activity, self-efficacy in overcoming barriers while performing physical activity, and veteran environment to describe primary influences on the physical activity of the individual.

Research Questions

The following research questions were identified for this study:

- RQ1: What are veterans' expectations about physical activity, and how these expectations affect their postservice physical activity?
- RQ2: What are veterans' perceptions on self-efficacy about physical activity, and specifically on self-efficacy in overcoming barriers to physical activity, and how these perceptions affect their postservice physical activity?
- RQ3: What are veterans' perceptions on self-control associated with physical activity, and how these perceptions affect their postservice physical activity?
- RQ4: What are veterans' perceptions on how the environment may affect their postservice physical activity?
- RQ5: What is the emotional coping status of veterans as it pertains to their postservice physical activity?

Figure 1 indicates the different constructs addressed in the context of the study that potentially influence the target behavior.

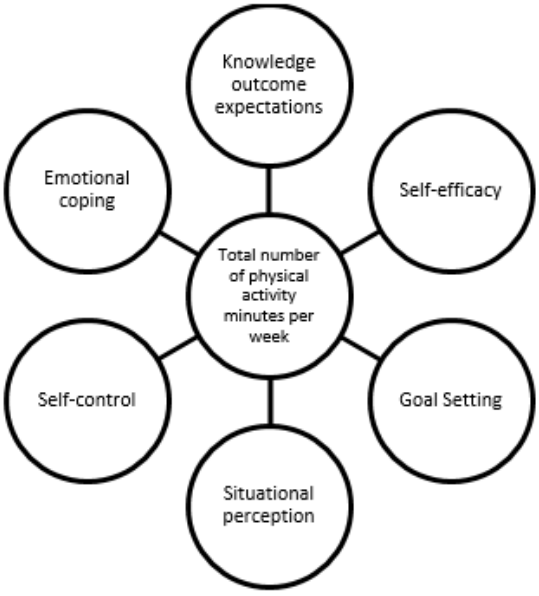

Figure 1. Diagram of the study.

Nature of the Study

To accomplish such a task, a qualitative case study was conducted. In the realm of public health, such studies are used in addition to the cross-sectional ones, which are used to measure the prevalence of diseases by determining whether exposure precedes or follows the affected outcome (Bonita, Beaglehole, Kjellström, & Organization, 2006). The advantages of conducting a case study included the ability to (a) engage in a quick, single round interview or examination, (b) incur lower costs than other study designs, (c) provide information that can be beneficial in triaging a situation, (d) allow for a determination of association between variables of interest, and (e) ensure that the relative distributions of health and disease in a given population can be clearly identified, which ensures that case finding priorities may be generated (L. D. Brown et al., 2013; Little, 2013; Sedgwick, 2014). In spite of the benefits, there were certain disadvantages

associated with the completion of a study of this nature. For example, the cases should provide adequate data to detail a rich description of the concept without becoming trivial (Patton, 2002). Further, although case studies are often criticized for the lack of scientific rigor (Crowe et al., 2011; Yin, 2009), qualitative researchers can apply several techniques to improve the rigor of their study, such as intercoder agreement and member checking (please see more information in Chapter 3). Such disadvantages were not barriers to the current study, however, as they were not pertinent to the type of study being conducted.

Conceptual Framework

As the researcher, I used social cognitive theory, originally put forth by Bandura in 1977, as a means of further investigating this matter. Social cognitive theory is used to identify the way people can learn to change over the course of their lifetimes (Bandura, 1977, 1986, 1989). According to social cognitive theory, there is a three-way dynamic that may be used to define human behaviors and their associated environmental influences (Bandura, 1977, 1986, 1989). Viewing the development of the individual from the perspective of his or her lifespan allows for the identification of the different variants that play a role in affecting the behavior of the individual and the level of power assigned to those variants by the individual through biological, physical, environmental, social, and economic influences (Bandura, 1977, 1986, 1989).

The application of social cognitive theory employs the use of certain constructs (Sharma, 2016). These constructs include knowledge, outcome expectations, outcome expectancies, situational perception, environment, self-efficacy, self-efficacy in overcoming impediments, goal setting, self-control, and emotional coping while being

underpinned by the capabilities of symbolizing, vicarious forethought, self-regulation, and self-reflection (Sharma, 2016). Targeted constructs for the completion of this study included expectations and self-efficacy in performing the regular physical activity; goal setting in the performance of physical activity; self-efficacy in overcoming barriers while performing physical activity; and the environment of the veteran. Of particular focus were understanding the veteran status participants in regard to their current health and fitness status and the goal setting based on their current status, as well as idenitfying potential barriers that would cause them to falter in their plan for overcoming the process of accomplishing the goals set forth for themselves.

Definition of Terms

Knowledge outcome expectations: Knowledge outcome expectations refer to the results that an individual expects because of the application of learned information (Sharma, 2016).

Self-efficacy: Self-efficacy refers to the belief of the individual that he or she will succeed in the accomplishment of a given task (Sharma, 2016).

Goal setting: Goal setting refers to the ability of the individual to set goals that adhere to the *SMART* formula, that is, that they are specific, measurable, achievable, results-focused, and time-bound (Sharma, 2016).

Moderate intensity: Moderate intensity, when used in conjunction with the term *physical activity*, refers to the completion of any activity that “expends 3.5 to 7 calories per minute” (University of Illinois, 2017, “What's moderate intensity exercise?,” para. 2).

The CDC's (2008) table of moderate intensity physical activity is included in Appendix A.

Physical activity: Physical activity refers to "any bodily movement produced by skeletal muscles that require energy expenditure" (World Health Organization, 2017, para. 1), with "regular moderate intensity physical activity" being identified as necessary to maintain the health status of the individual (World Health Organization, 2017, para. 2).

Situational perception: Situational perception refers to the way individuals view their current situation (Sharma, 2016).

Total minutes of physical activity at moderate intensity per week: The total minutes of physical activity at a moderate intensity per week refers to the total number of minutes that an individual engages in physical activity (Grosso, 2013). Each participant identified the number of minutes that he or she engages in moderate physical activity per day, on average.

Self-control: Self-control refers to the ability of the individual to engage in practices of control without outside aid (Sharma, 2016).

Emotional coping: Emotional coping refers to the ability of the individual to cope with his or her emotions (Sharma, 2016).

Veteran: A veteran is defined as an individual who has served in the military but who no longer maintains active or reserve duty status (Dahn et al., 2011).

Assumptions

It was assumed that the participants would provide accurate information that was free of bias. It was assumed that social cognitive theory (Bandura, 1977, 1986, 1989)

would provide ample insight into this particular area of study, allowing the results to ultimately be used to effect positive change on society as a whole. It was assumed that this research design would provide the answers necessary to effect a successful resolution to the research questions. It was further assumed that I would be able to distance myself from the study, reducing the potential for experimenter bias.

Limitations

The limitations present in the study included the number of organizations present within the sample size, the different personality types present in the sample, the fact that data would only be collected from individuals who were willing to participate in a research study, the fact that the information collected from participants was self-reported, which had the potential to decrease its accuracy, the use of a qualitative design due to the use of small sample size that cannot be generalizable to other groups, and the fact that the qualitative methods may distort the responses due to personal bias (Patton, 2002).

The number of organizations present within the sample size acted as a limitation as veterans gaining treatment access at different locations may have different physical fitness profiles, which may have had the potential to skew the collected data. The personality types of the participants served as a limitation, as some may have been overly lax or overly critical, causing variations in their perceptions that are different from the actuality. As with all research studies involving the use of human participants, data are skewed only toward those who are willing to participate in a research study, with no way of knowing if the data would have a different result if those who are disinclined to participate were to provide their perspectives. Self-reported information has the potential

to be unreliable as the potential for different forms of measurement are present, creating a nonstandard reporting possibility, as in the case of one participant measuring the circumference of their waist at the top of their pelvic bone while another was to measure around their belly button, or, even if all measure at their belly button, if some have issues with measuring tape drop or pulling the tape too taunt, for example.

Delimitations

The delimitations served as a means of limiting the influences that constrict the capacity of the study. In this case, delimitations include the research design selected, the sample population, the presence of the participants in their association with the VA, the side of VA data collection, the time constraints of the study, the type of information that may be collected from participants, and the fact that only veterans were used in the completion of the study. A further delimitation was the narrowing of the sample population to veterans over the age of 23 and under the age of 80 who have been out of the military for no less than a period of 1 year, allowing the potential for unhealthy habits to have been picked up and due to the variations between health requirements based on the gender of the individual. Both genders were included in the sample population.

Significance of the Study

The significance of the study was in its ability to identify and understand the factors that influenced physical activity among veterans post reserve and active duty. The purpose of this particular research was reached through the application of social cognitive theory as a means of better understanding how the behaviors serve to influence the veteran population while assisting laypeople in understanding how social determinants

and environmental factors may influence and affect veterans, allowing for the creation of interventions designed to help curtail overeating practices following the conclusion of their service to their country.

Further, I believe the application of social cognitive theory could potentially help veterans curtail unhealthy patterns in their lives to reduce weight gain following active or reserve duty status and other potentially related health concerns. Using social cognitive theory ensured that the study not only would offer the insights necessary to identify the current behavioral patterns and the associated perceptions of physical activity and physical fitness levels, but would also work to ensure the identification of the manner in which those perceptions and behavioral patterns allowed for the change in behaviors (Bandura, 1977, 1986, 1989). The identification of the way the behaviors are changed may allow for future researchers to explore whether it will be possible to engage in behavior modification strategies as a means of realigning perceptions and behaviors, in turn potentially allowing for the creation of a healthier veteran population.

The benefits of physical activity and sports among veterans, including those with posttraumatic stress disorder (PTSD), have long been researched (Caddick & Smith, 2014). Positive exercise regimens not only work to reduce symptoms of PTSD, where applicable, but also serve to provide increased mental health and a positive affective experience and have been shown to improve the overall quality of life among the veteran population (Caddick & Smith, 2014). As such, not only will the identification of these behaviors and perceptions work to benefit veterans by addressing matters of physical

concern, they will allow for the addressing of psychological concerns as well (Gunnell, Bélanger, & Brunet, 2016; Lizar, Mangundjaya, & Rachmawan, 2015).

This completed study has the potential to provide a high level of significance through its ability to show the positive connection between social cognitive theory, physical activity, mental health, and weight management within the military veteran population, providing a better quality of life for all, while at the same time providing insight and information that will serve to benefit society as a whole. By working to identify the connection between social cognitive theory, physical activity, mental health, and weight management within the veteran population, it became possible to identify the manner in which this population may be able to increase their overall fitness levels, thereby working to reduce the current burden on the VA while improving the quality of life for veterans and allowing for further social and societal change.

Summary

Chapter 1 has offered up background information, allowing for insight into the under investigation and providing a discussion of the current state of affairs concerning weight concerns within the veteran population. The problem statement was detailed, indicating the specific issues associated with being overweight and or obese within the veteran population and how such a matter adversely affects not only the veteran population but also society. The research questions were presented, ensuring that the readership knows what is being investigated during the course of the study, in case it was not clear prior to this point, and the purpose of the study is defined, ensuring that the readership is aware that this is both for the veteran population and for American society

as a whole, as it is Americans who incur the costs through tax dollars for veteran health care; as a result of the low levels of funds that this department receives, it is vital to ensure that all that can be done is being done in order to maximize the number of individuals who can be assisted with this minimal budget.

The nature of the study was presented, offering insight into the study design, a qualitative case study, something I have discussed in greater depth in Chapter 3. The conceptual framework, social cognitive theory (Bandura, 1977, 1986, 1989), was discussed, allowing for the clear correlation of the theory to the study and indicating the manner in which the theory would be practically applied as a means of effecting such change. The definitions were presented of certain common terms and phrases, as the use of the same can become confusing, and the presence of such a section works to ensure that all parties, both the readership and myself, are speaking of the same matter when using a given term, increasing the overall validity and reliability of the study. The assumptions, limitations, and delimitations of the study were likewise presented briefly in this section, to be addressed in greater detail in Chapter 3 as well. The significance of the study was presented, and the study was situated. Now that such background information has been given, both to the study and to the subject matter being discussed herein, it becomes necessary to review the basic literature on the subject, ensuring that a solid foundation of research is available before continuing to the data collection.

Chapter 2: Literature Review

Introduction

The purpose of this study was to explore how the thoughts, perceptions, and behaviors of veterans affect their physical fitness levels following their time in the service, as weight gain has been shown to decrease the overall quality of life for U.S. military veterans while increasing the overall financial burden on taxpayers and working to create a growing societal concern, one that must be addressed if any Americans are to be able to effect change within the current state of society (Shen et al., 2009).

Physical fitness has myriad aspects associated with the concept; some are mental, while others are physical. Furthermore, there are the additional associated mental health concerns present within the veteran population that likewise have the potential to contribute to concerns associated with the physical fitness level of the individual beyond the normal mental influences. Understanding the different contributing factors, both mental and physical, the different psychological theories applied within the context of this study, and explored within this literature review, allow for a deeper understanding of the concerns associated with such a topic, and an identification of what physical fitness is all served to provide the insight necessary to explore this problem in greater detail.

Literature Search Strategy

I obtained the literature compiled in this review through comprehensive online library searches and other online search methods that were deemed beneficial to the completion of the study. To develop the search strategy described herein, I conferred with a Walden research librarian, ensuring that the best search methodology would be

employed in the collection of documents. To reconfirm the list of keywords I used, the librarian likewise reviewed the list, offering suggestions where applicable and suggesting several additional terms.

Among the different journal databases that I searched, the databases that generated most applicable the results to the study included SAGE, EBSCO, Academic Search Premier, Wiley, Elsevier, Scopus, and Science Direct. It is important to note that I accessed a multitude of other databases during the search process as well, but these provided access to the highest number of beneficial results overall. I reviewed current literature containing empirical research concentrated in areas that were both pertinent and relevant to the study, as evidenced below in the list of the primary keywords used in the search for documents.

While it was, at times, necessary to utilize older literature, based on the availability of data, subject matter, and the need to go back to the sources of information, as about theory, most of the documents collected were published from 2012 to present. These articles appeared in a wide range of publications, including *Health Psychology, Military Medicine, Occupational Medicine, Perceptual and Motor Skills, Psychology of Sport and Exercise, Public Health Reports, Obesity, Journal of Physical Education Records, the American Journal of Preventative Medicine, Sport, Preventative Medicine, Sports Medicine, Journal of Developing Areas, Applied Nursing Research, Preventing Chronic Disease, Physical Sports Medicine, Gerontologist, Population Health Management, Thai Journal of Nursing Research, Journal of Psychology,* and *Alimentary Pharmacology and Therapeutics*. Further studies and research were collected through

searches conducted through Google Scholar, with the selection of peer-reviewed journals, and through the completion of Internet searches undertaken through Google and Scirus, seeking out peer-reviewed publications when possible. Still further information was collected from print material. In addition, I reviewed identified journals, particularly in the case of themed issues, for other relevant work that could be deemed beneficial to the completion of the study. Among the different keywords used in the search process were *physical fitness, psychological theory, social cognitive theory, Bandura, mental aspects, physical aspects, physical activity, health maintenance, veterans, VA, Veteran's Administration, physical activity, military, branches, behaviors, perceptions, obesity, BMI, body mass index, strength, endurance, body composition, health,* and *well-being*.

Physical Activity

According to the National Institute of Health (NIH, 2016), physical activity is "any body movement that works your muscles and requires more energy than resting" (p. 1). The most recent guidelines for physical activity and the standards associated therewith for the United States were defined by the U.S. Department of Health and Human Services in their 2008 report entitled *Physical Activity Guidelines for Americans* (CDC, 2008; Office of Disease Prevention and Health Promotion, 2009; NIH, 2016). Since the 1990s, advice concerning physical activity and the engagement of the individual in the same has been a standardized part of health-based guidelines. However, with few positive results from the promotion of physical activity and a continued decrease in the overall health and wellness of the general population, the Department of Health and Human Services was

tasked to come up with a framework for physical activity guidelines that should be employed by all Americans (Office of Disease Prevention and Health Promotion, 2009).

This framework starts by dividing physical activity into two different categories: baseline activities and health enhancing physical activities (Office of Disease Prevention and Health Promotion, 2009). Baseline activities are those activities that are a general part of daily life, such as climbing stairs, walking to and from their vehicle, and even moderate to heavy lifting, such as moving a box of copy paper; they are the daily activities that move people from one place to another and require the use of their bodies through the contraction of skeletal muscles (Office of Disease Prevention and Health Promotion, 2009). Typing this literature review would be considered a baseline activity because of the movement of skeletal muscles involved with typing, the recommended stretches when using a computer for a certain length of time, and the breaks to get up and walk around to refrain from causing undue physical stress to the body. For the framework, those that only engage in baseline activities are considered inactive, and such activities are not taken into account when factoring the level of physical activity of the individual (Office of Disease Prevention and Health Promotion, 2009).

This leaves those physical activities that are classified as health enhancing, and it is these activities that are tracked and monitored when looking at the health levels of the general population and specific populations therein (Office of Disease Prevention and Health Promotion, 2009). Health enhancing physical activities are defined as those activities “that, when added to baseline activity, produces health benefits” (Office of Disease Prevention and Health Promotion, 2009, p. 1). Activities that may fall under

health enhancing physical activity include weight lifting, running, jumping rope, power walking, dancing, climbing, and even yoga.

According to the guidelines set by the framework, there are four different levels of physical activity and every individual will fall into one of these four categories: inactive, low, medium, or high (Office of Disease Prevention and Health Promotion, 2009). Table 1 shows the information as presented by the guidelines and the amount of physical activity necessary to classify for each of the different levels of physical activity:

Table 1

Classification of Total Weekly Amounts of Aerobic Physical Activity Into Four Categories

Levels of Physical Activity	Range of Moderate Intensity Minutes a Week	Summary of Overall Health Benefits	Comment
Inactive	No activity beyond baseline	None	Being inactive is unhealthy.
Low	Activity beyond baseline, but fewer than 150 minutes a week	Some	Low levels of activity are preferable to an inactive lifestyle.
Medium	105 minutes to 300 minutes a week	Substantial	Activity at the high end of this range has additional and more extensive health benefits than activity at the low end.
High	More than 300 minutes a week	Additional	Current science does not allow researchers to identify an upper limit of activity above which there are no additional health benefits.

Note. From the Office of Disease Prevention and Health Promotion, 2016, p. 1.

As the 2008 *Physical Activity Guidelines for Americans* produced by the U.S. Department of Health and Human Services are still considered the most recent guidelines for use, these are the guidelines that must be used as a means of defining and identifying all baseline activities and all health enhancing physical activity guidelines CDC, n.d.; Office of Disease Prevention and Health Promotion, 2009).

Epidemiology of Physical Activity in the General Population

While physical activity and overall health and wellness levels have been a concern of the general population for many decades, it was not until 1996 that the Surgeon General of the United States published a study on the overall levels of physical activity and health within the general population, a study that was 2 years in the making and sparked by the increasing propensity for health issues within the general population (U.S. Department of Health and Human Services, 1996). The Surgeon General is tasked with addressing matters of public health, providing advice concerning health practices, and ensuring that accurate scientific information is presented to the general population concerning the best means of working to improve their overall levels of health while at the same time reducing potential risks associated with illness or injury (Office of Disease Prevention and Health Promotion, 2009). In keeping with those duties, the 1996 report was published as a means of showing the current state of health within the United States and the current levels of physical activity within the general population (Office of Disease Prevention and Health Promotion, 2009). The primary message that the report sought to convey was "that Americans can substantially improve their health and quality of life by including moderate amounts of physical activity in their daily lives" (Office of Disease Prevention and Health Promotion, 2009, p. 1). The report indicated that not only did the majority of the population at that time not receive enough exercise, but that, regardless of age or other associated factors, all individuals would benefit from the weekly engagement in physical activity (Office of Disease Prevention and Health Promotion, 2009).

According to the CDC, the statistics have not gotten much better since 1996 (Payne et al., 2014). National studies were conducted between the years 2008 and 2013 indicating the rates of activity and inactivity across states and regions. In a survey of the general population conducted across all states, approximately 1 out of every 5 adults, or 21% of the general population, met the standards for physical activity engagement (Payne et al., 2014). Table 2 serves to provide the results that allowed for the creation of the statistics. Results were collected by asking respondents 18 years of age or older whether they engaged in physical activities or exercise outside of their regular job; the following results indicate the number of individuals who answered *no* to the question; those who did not respond were not included in the collected data (Payne et al., 2014, p. 2).

Table 2

Percentages of Adults by State who did not Engage in any Leisure-Time Physical Activity, 2013

Location Type	Location	Value	95% CI	Sample Size
National	National	26.3	(26.0-26.6)	450,093
	Alabama	31.5	(29.8-33.2)	6,164
	Alaska	22.3	(20.5-24.2)	4,275
	Arizona	25.2	(22.8-27.8)	3,910
	Arkansas	34.4	(32.5-36.3)	4,871
	California	21.4	(20.3-22.6)	10,190
	Colorado	17.9	(17.1-18.9)	12,370
	Connecticut	24.9	(23.4-26.4)	7,121
	Delaware	27.8	(26.1-29.5)	4,926
	District of Columbia	19.5	(17.6-21.5)	4,429
	Florida	27.7	(26.6-28.9)	31,527
	Georgia	27.2	(25.8-28.6)	7,381
	Hawaii	22.1	(20.7-23.6)	7,368
States	Idaho	23.7	(22.0-25.4)	5,260
	Illinois	25.1	(23.5-26.8)	5,305
	Indiana	31.0	(29.8-32.3)	9,584
	Iowa	28.5	(27.1-29.9)	7,678
	Kansas	26.5	(25.8-27.3)	22,177
	Kentucky	30.2	(28.8-31.6)	10,156
	Louisiana	32.2	(30.2-34.3)	5,026
	Maine	23.3	(22.0-24.5)	7,724
	Maryland	25.3	(24.1-26.5)	12,261
	Massachusetts	23.5	(22.4-24.7)	13,532
	Michigan	24.4	(23.4-25.5)	12,214
	Minnesota	23.5	(22.1-24.9)	13,323
	Mississippi	38.1	(36.4-39.8)	7,009

(table continues)

Location Type	Location	Value	95% CI	Sample Size
States	Missouri	28.3	(26.7-29.9)	6,793
	Montana	22.5	(21.4-23.7)	9,218
	Nebraska	25.3	(24.2-26.4)	16,158
	Nevada	23.7	(21.5-26.0)	4,799
	New Hampshire	22.4	(20.9-23.9)	6,010
	New Jersey	26.8	(25.6-28.1)	12,049
	New Mexico	24.3	(23.0-25.6)	8,512
	New York	26.7	(25.4-28.1)	8,164
	North Carolina	26.6	(25.4-27.9)	8,401
	North Dakota	27.6	(26.2-29.1)	7,380
	Ohio	28.5	(27.2-29.7)	11,117
	Oklahoma	33.0	(31.6-34.3)	7,831
	Oregon	18.5	(17.1-20.1)	5,407
	Pennsylvania	26.3	(25.2-27.4)	10,564
	Rhode Island	26.9	(25.4-28.5)	5,922
	South Carolina	26.9	(25.6-28.1)	10,067
	South Dakota	23.8	(22.2-25.6)	6,553
	Tennessee	37.2	(35.3-39.1)	5,196
	Texas	30.1	(28.6-31.5)	10,100
	Utah	20.6	(19.7-21.6)	11,937
	Vermont	20.5	(19.2-21.8)	5,986
	Virginia	25.5	(24.2-26.9)	7,767
	Washington	20.0	(19.0-21.1)	10,734
	West Virginia	31.4	(30.0-32.9)	5,769
	Wisconsin	23.8	(22.2-25.6)	5,823
	Wyoming	25.1	(23.5-26.6)	6,055

Note. From (Centers for Disease Control, 2015)

The results of the CDC study further showed that those living in Southern states were less likely to engage in physical activities outside of their job, that is, outside of the baseline, than those who lived in the West, Midwest, or Northeast regions of the country

(Payne et al., 2014). The 2013 CDC study also indicated that Caucasian adults (23%) were more likely to meet the physical activity guidelines than African American adults (18%) or Hispanic adults (16%). Furthermore, men were more likely to engage in physical activity than women, at 54% and 46% respectively, and younger adults were more likely to be physically active than older adults (Payne et al., 2014).

Lest it be indicated that the CDC's results were abnormal in the United States as compared to other countries, results of the CDC's 2013 U.S. study (as cited in Payne et al., 2014) were comparative to those of other studies conducted in different regions around the globe, indicating that, in developed nations, physical activity was on the decline, creating not just a national health concern, but a global one as well (Sibai, Costanian, Tohme, Assaad, & Hwalla, 2013).

It is further important to note that many studies used self-reporting as a means of determining the activity level of individuals (Baecke, Burema, & Frijters, 1982; Payne et al., 2014; Sibai et al., 2013). When reviewing the collected results of these studies, it was important to determine the validity, reliability, and accuracy of the data collected therein (Baecke et al., 1982; Gerrard, 2012). To determine this, data collected from national and international studies on self-reported levels of physical activity were reviewed to get a baseline of reported activity within different age ranges. This information was then compared to information collected from participants whose reported physical activity levels were not self-reported and compared to those who were self-reported (Baecke et al., 1982; Gerrard, 2012). Results indicated that the level of education of the reporting individual played a role in the accuracy of the reporting by the individual, with higher

accuracies in those who had a college or university education or higher, as compared to those who had a high school education or who had not completed high school (Baecke et al., 1982; Gerrard, 2012). In spite of these variances, and in spite of the higher levels of accuracy of self-reporting in those who were better educated, the general understanding of the differences between physical activity levels was sufficient to provide data that were considered representative of the whole (Baecke et al., 1982; Gerrard, 2012).

Epidemiology of Physical Activity in the Veteran Population

While there has been no clear epidemiology of physical activity in the veteran population as a whole, there have been numerous studies conducted concerning the levels of physical activity in different veteran populations, including whether or not the individual uses services provided by the VA (Buis et al., 2011), whether the individual suffered from PTSD, combat stress, and participated in Operation Iraqi Freedom (Hall, Hoerster, & Yancy, 2015), has been diagnosed with diabetes (Bouldin & Reiber, 2012), has been diagnosed with brain injury (Hirshon et al., 2009), was discharged during years between physical activity assessments in their branch of service, or suffers from an eating disorder (Littman, Boyko, McDonell, & Fihn, 2012). Although a comprehensive study has not been conducted concerning the epidemiology of physical activity in the veteran population, studies did show there were certain characteristics present within the veteran population that played a role in whether the individual was likely to be physically active.

Physical activity levels in veteran populations have been shown, on the whole, to decrease between active duty status and post deployment or veteran status (Bouldin & Reiber, 2012; Buis et al., 2011; Hall et al., 2015; Hirshon et al., 2009; Littman et al.,

2012; Millstein et al., 2015). While participants in the studies indicated that they believed that staying active was important and that they believed that physical activity would allow them to stay healthier, many reported issues associated with their ability to do so including pain, injuries associated with previous deployment, and other health problems that have manifested as a result of their service that makes maintaining the same physical activity levels as they did when they were active status difficult (Bouldin & Reiber, 2012; Buis et al., 2011; Hall et al., 2015; Hirshon et al., 2009; Littman et al., 2012; Millstein et al., 2015). Depression within the population has likewise been shown to further reduce activity levels within the veteran population (Hirshon et al., 2009). Those who were diagnosed with diabetes had lower physical activity levels than those who did not, though it should be noted that there is a question of correlation or causation associated with these results (Bouldin & Reiber, 2012). Results further indicated that physical activity was lower the longer it had been since the individual was active duty status, that the higher the number of missions that the individual went on during his or her time as active duty the lower his or her physical activity levels were, that those who were classified as obese reported lower physical activity levels, and those who were nonsmokers or former smokers had higher levels of physical activity than current smokers (Littman et al., 2012). Results further indicated that those who availed themselves of services provided by the VA were less likely to be physically active than those who obtained their medical services from traditional health care facilities, and those who suffered from PTSD or had been diagnosed with an eating disorder were less likely to be physically active as well (Hall et al., 2015; Millstein et al., 2015).

Determinants of Physical Activity in the General Population and the Veteran Population

There is no difference in the how physical activity levels are determined between those of the general population and those of the subcategory of veterans. All individuals in the United States are held to the same standards of physical activity, those that were identified in 2008 by the U.S. Department of Health and Human Services (NIH, 2016; Payne et al., 2014; U.S. Department of Health and Human Services, 1996). As such, this standard may be applied regardless of discharge status, regardless of the use of the VA, and regardless of any other potential quantifiers.

Physical Fitness

Before it is possible to understand the thoughts, perceptions, and behaviors of veterans and how those different aspects work to affect the level of physical fitness present within the population, it becomes necessary first to understand what physical fitness is. Among the reviewed sources of literature, there was a strong correlation in all the definitions, particularly with regard to the definition of physical fitness as defined by the U.S. military and each of its different associated branches, definitions that have not changed markedly throughout the years (Bouchard, Shephard, Stephens, Sutton, & McPherson, 1990; Caspersen, Powell, & Christenson, 1985; Daniels, Vogel, & Kowal, 1979; Gutin, 1980; Knapik et al., 2010; Pate, 1989; Vogel, 1985). The currently accepted definition of physical fitness is “a set of attributes that relate to the ability of people to perform physical activity. By this definition, physical fitness is not a single characteristic but has some attributes or ‘components’” (Knapik et al., 2006, p. 614).

The physical fitness of the individual is not only consistent with those components, which can include muscle strength, muscular endurance, cardiorespiratory endurance, and body composition, but is affected by and influenced by the total health and wellbeing of the individual, mentally, physically, and some have even argued spiritually (Knapik et al., 2006, 2010). Further aspects to take into consideration include the weight status of the individual, for while a person can be classified as physically fit based on one or more of the identified components of physical fitness, whether the individual is underweight, overweight, obese, or within normal weight ranges also affects his or her overall level of fitness and health, which can in turn contribute to issues associated with physical fitness later on (Xianwen et al., 2010).

Another factor to take into consideration is the body mass index (BMI) of the individual. With each passing decade, the BMI scale changes as do the ratios that are considered to be healthy for weight to height ratios, creating adjusted norms (Bahadur, 2014). In the 1990s, a woman who was 5'7" was considered to be within normal ranges if she was 120 to 125 lbs; by today's standards, that individual is classified as underweight and is recommended to be within the 135- 145-lb range to be considered within normal limits (Shen et al., 2009). The "BMI for men 20-74 years of age increased from just over 25 to almost 28" between the 1960s and the late 1990s (Ogden, Fryar, Carroll, & Flegal, 2004, p. 2). Such modifications toward what is considered healthy, what is considered physically fit, and what is considered normal, all serve to play an additional role in the difficulties faced by veterans and their mentalities and perceptions associated with the same. While it may be speculated that such changes are designed to classify "healthy" as

the mean average of the overall population, this does not serve to indicate that this is within healthy ranges, but the average level of healthiness within the given population and an adjustment on recommended percentages and weights based on the overall population as opposed to what may be the most ideal for a specific individual (Ogden et al., 2004; Penman & Johnson, 2006). Confusion regarding what constitutes physical fitness can be a primary source of confusion and consternation, whereas the perception that that which was considered physically fit during the veteran's time in the military is different from that which is considered physically fit in the civilian population.

Psychological Theory: Bandura

Albert Bandura's theories centered on self-efficacy, and observational learning became widely accepted in the 1970s (McLeroy, Bibeau, Steckler, & Glanz, 1988). Bandura (1977) followed the behaviorist school of thought, believing in both classical and operant conditioning; however, he took his theories a step further, believing that, in addition, mediating processes were present between stimuli and responses of individuals and that behavior was learned through both the environment of the individual and through engaging in practices of observational learning. Bandura took his theories of observational learning and worked to create his theory of self-efficacy, his theory of social learning, and his theory of social cognitive learning as a result of these two additional postulations regarding behaviorist theory (Affenito, Franko, Striegel-Moore, & Thompson, 2012; McLeroy et al., 1988; Pate, 1989).

Self-Efficacy

Bandura first published *The Exercise of Control* in 1997; Bandura argued that "to succeed, people need a sense of self-efficacy, to struggle together with resilience to meet the inevitable obstacles and inequalities of life" (p. 5). This was not the first time that Bandura explored such an area, however. Self-efficacy was, according to Bandura (1977), the belief of the individual in his or her capacity and ability to execute the behaviors necessary to produce a specific performance goal or to attain the desired result. Observational learning is the process of observing the manner in which others act and interact to determine how one should personally act in order to accomplish a task, complete a goal, or be successful in the completion of a given activity (Affenito et al., 2012; Bandura, 1977, p. 19; McLeroy et al., 1988; Pate, 1989). Through observational learning, the individual gains insight into whether he or she would be able to accomplish a specific task or meet a specific goal based on whether or not the person he or she is observing can accomplish the same task, meet a specific goal, or the manner in which he or she fails to do so based on the similarities and differences between the individual being observed and the individual doing the observing and the resources available to each (Bandura, 1977, 2010).

Social Cognitive Theory/Social Learning Theory

Social cognitive theory, sometimes referred to as social learning theory, takes Bandura's initial construct of observational learning a step farther, indicating that the individual's knowledge and his or her ability to acquire new knowledge, can be directly related, to one degree or another, to his or her observations of others through his or her

social interactions, experiences, and any and all outside influences from media consumption (Bandura, 1977, 1986, 1989, 2010; Zimmerman & Schunk, 2003). Through the application of social cognitive theory, it becomes possible to predict the self-care behaviors of the individual (Chen, Wang, & Hung, 2015). As individuals collect observations based on how they believe they should behave and the different aspects that constitute life and the associated health of the individual, the individual creates his or her perceptions of what each construct means, taking those constructs and applying them to their lives.

Applications of Social Cognitive Theory: Bandura and Physical Fitness

By applying Bandura's theory of self-efficacy and Bandura's social cognitive theory, it becomes possible to predict and understand the reasons behind the perceptions of the individual as they pertain to physical fitness (Bandura, 1977, 1986, 1989, 2010, p. 20). The beliefs of the individual, his or her perceptions, and his or her levels of self-efficacy are all affected by the observational learnings of the individual, from the value that he or she places on physical fitness to the manner in which he or she chooses to apply physical fitness practices in his or her life (Bezjak & Lee, 1990). The more that physical fitness and physical activity are promoted, the more likely an individual will be to remain physically fit (Teerarungsikul et al., 2009). As the individual's lifestyle and patterns change, and as the individual ages, his or her self-efficacy levels and participation levels will change based on the preconceptions that he or she has based on his or her observations of others at that stage in their lives (Perkins, Multhaup, Perkins, & Barton, 2008). Thus, the older the individual gets, the less likely he or she may be to

engage in a high level of physical activity, and he or she will experience declining levels of physical fitness as a result (Brewer, Grant, & Potenza, 2008; Perkins et al., 2008). As the individual perceives differences between military and civilian life, so too will his or her level of engagement change, working to play a role in the overall fitness level of the individual as well as the individual no longer perceiving himself or herself as an active member of the first group (Yin & Boyd, 2000).

Many studies have been conducted that serve to provide a foundation for the use of social cognitive theory and its applications within the context of physical activity and physical fitness levels in various populations. Research has indicated that the use of social cognitive theory in the creation of interventions and as a predictor of the likelihood that an individual will engage in physical activity and maintain high levels of physical fitness have been met with success (Li et al., 2010; Mailey & McAuley, 2014; Schembre, Durand, Blissmer, & Greene, 2015; Suh, Joshi, Olsen, & Motl, 2014; U.S. Department of Health and Human Services, 1996; Yoojin, Motl, Olsen, & Joshi, 2015). The use of behavior identification practices and behavioral modification interventions as evidenced through the application of social cognitive theory all showed both positive results in terms of being able to increase levels of physical fitness and physical activity when applied as an intervention and as strong predictors based on current behavioral characteristics at the initial time of study in regard to participant likelihood to levels of physical fitness and physical activity in individuals during the course of study (Li et al., 2010; Mailey & McAuley, 2014; Schembre et al., 2015; Suh et al., 2014; U.S. Department of Health and Human Services, 1996; Yoojin et al., 2015). The utilization of

social cognitive theory both as an accurate predictor and as a means of detailing interventions that showed positive results when applied serves to indicate the overall validity and reliability of applying this theory within the construct of this research study.

Mental and Physical Aspects of Maintaining Physical Fitness

Within the veteran population, such changes are further compounded by certain factors, both mental and physical (Ramchand, Rudavsky, Grant, Tanielian, & Jaycox, 2015). Whether the individual has become injured during the line of duty, has become disabled, or has contracted an illness because of service or after service will determine the level of physical fitness on the part of the individual. Furthermore, whether the individual suffers from a chronic condition will likewise play a role in the level of physical fitness (Ramchand et al., 2015). Still, other influences that can cause a veteran to shift from the physical fitness profile of that of an active military duty personnel member to one that is more in line with the civilian population or of a greater deficiency thereof are those that are mental. Exhaustion, depression, PTSD, mental illness, insomnia, stress, overwork, and other associated mental factors can contribute to a decreased likelihood of an individual being willing to engage in physical activity, which can in return and over time work to decrease the physical fitness level of the individual (Ramchand et al., 2015). The longer such conditions are present, the more likely that the observational learning patterns of the individual will change, working to reinforce further behaviors that are of a decreased physical activity level and thus resulting in a decreased physical fitness level for the individual.

Veterans and the VHA

It is likewise important to note that not all factors associated with the physical fitness level of the individual may be in his or her control. VA hospitals have been experiencing major treatment delays due to myriad reasons including decreased funding, an increased amount of veterans, a lack of facility space, lack of medical personnel, and other associated factors, which works to increase the amount of time that a veteran will remain ill or injured, further compounding the physical fitness level of the individual; in severe cases, this has resulted in death (Griffin, Black, Bronstein, & Devine, 2015). The knowledge of the amount of red tape and delays that are associated with VA treatment options can cause some veterans to delay care, further prolonging their illness or injury and further compromising their overall levels of physical fitness. Unfortunately, due to a lack of resources, the VA hospitals are often the only medical treatment option available to veterans, given the increased costs of medical care, which creates a self-perpetuating system, one that only serves to further decrease the physical fitness levels of veterans, as opposed to assisting them in the manner originally intended. Though the VA requests $124 billion in funding, the average amount received is only $100 billion (D. W. Brown, 2010). The estimated total veteran population was at 21,619,731 individuals as of 2014; of those, only 9,111,955 were aware of how to access or were willing to take advantage of the benefits afforded to veterans through the VA (Bagalman, 2014). Of those, only 5,908,042 veterans could access services through VA health care throughout the 2014 fiscal year (Bagalman, 2014). With only 27.33% of those who should be able to receive services being able to access those services, such numbers are staggering, particular

lending insight into further reasons for decaying physical fitness in veterans. As of 2014, the wait time for a patient to be seen can range from an average of 119 days to 1 year (Alba, 2014). This means that from the time the veteran is aware that a problem might be present, he or she may have to wait up to an entire year before he or she is seen for that condition, though it should be noted that some of the facilities run by the VA have longer wait times than others (Alba, 2014).

Interventions

The application of different branches of theory and different data sets serves to place different perspectives on the interventions and the associated beneficence of the same to the target populations defined (Berger, Müller, Brähler, Philipsen, & de Zwaan, 2014; Luckner, Moss, & Gericke, 2011; Mailey & McAuley, 2014; Minton, Dimairo, Everson-Hock, Scott, & Goyder, 2013; Rowlands, 2015; Short, Vandelanotte, & Duncan, 2014; Stanford, Durkin, Stallworth, & Blair, 2013; Wadsworth, Rudisill, Russell, McDonald, & Pascoe, 2015). In spite of these differences, results indicated that when the intervention is tailored specifically to one target population, the likelihood of the effectiveness of that intervention is high (Berger et al., 2014; Luckner et al., 2011; Mailey & McAuley, 2014; Minton et al., 2013; Rowlands, 2015; Short et al., 2014; Stanford et al., 2013; Wadsworth et al., 2015). In working to ensure that the intervention is not a blanket one and is instead directly correlated to the basic characteristics that define the target group for the intervention, the interventions should be designed to indicate success; however, there is no study that has shown the long-term effects of such interventions and whether the activities that comprise the interventions are carried on by the target

population following the completion of the research study or at any time greater than 6 months following the completion of the research study (Berger et al., 2014; Luckner et al., 2011; Mailey & McAuley, 2014; Minton et al., 2013; Rowlands, 2015; Short et al., 2014; Stanford et al., 2013; Wadsworth et al., 2015).

As there are no data collected in any of the studies designed to determine the effectiveness of physical activity and physical fitness interventions beyond the 6-month period following the completion of the study, there can be no true correlation made as to the effectiveness of such interventions over the long term. Habits are formed because of context-dependent repetition (Bloomgarden, 2004). Context-dependent repetition means that due to continued engagement in a given activity during a set period within a given setting, the behavior in which the individual engages becomes a habit (Bloomgarden, 2004). At an unknown point in history, the myth arose that a habit was formed after an individual engaged in a set behavioral pattern for a period of 21 days and, following that period, the behavior will have become habitual for the individual, something that he or she completes without any further thought, ingrained in his or her routine (Bloomgarden, 2004; Selk, 2013). Research has shown, however, that the formation of a habit depends on the way the individual engages in the behavior, the frequency of the behavior, and the manner in which the habitual behavior is formed (Bloomgarden, 2004; Selk, 2013). So, the question becomes, then, how long would it take for an intervention to generate a habit, in this case, working to continually boost the physical fitness and physical activity level of an individual of a general population. Unfortunately, there is no set answer. Lally, van Jaarsveld, Potts, and Wardle (2010) conducted a study to determine just that.

Participants were asked to engage in a behavior consistently over the period of 84 days; one individual created a habit for themselves in just 18 days, with habitual behavior defined as no longer having to remind themselves to engage in the activity, simply engaging in the activity without conscious thought or decision to do so (Lamb et al., 2010). Other participants took the full 84 days, while still others indicated that they did not form the habit until 254 days had gone by; the average time to form a habit was identified as 66 days (Lamb et al., 2010).

This serves to indicate that, while a study may work to increase the overall physical fitness and physical activity of the individual in the short term, there is no research to indicate that such interventions, unless they are carried out for consecutive months, will potentially serve to benefit the individual in the long term, which would place the population back within the same context as it was originally, with the individual gradually decreasing the amount of time that he or she engaged in the intervention following the completion of the study until the individual was back at the original fitness and activity levels that he or she started, or potentially at even lower levels than he or she started.

Summary

Physical fitness refers to the attributes that relate to the ability of an individual to perform a physical activity, allowing for quantification through a set of components that include physical factors, mental factors, and can be affected by outside influences as well (Knapik et al., 2006). Knowledge of Bandura's (1977, 1986, 1989, 2001) social cognitive theory and his theory of self-efficacy allow for a deeper understanding of the mindset of

the individual and how he or she may come to have an altered perception of the nature and importance of physical fitness following retirement or discharge from military service. Current statistics indicated that only 21% of the general population, or 1 out of every 5 individuals, meet the standards set by the U.S. Department of Health and Human Services for physical activity engagement CDC, 2008). While results indicated that White males are the most likely sector of the population to engage in physical activities, there is no clear epidemiology of physical activity in the veteran population as a whole, with the veteran population being broken up into further segments for study, as opposed to being studied as a population as a whole like the general population (Bouldin & Reiber, 2012; Buis et al., 2011; Hall et al., 2015; Hirshon et al., 2009; Millstein et al., 2015; Payne et al., 2014). It should be noted that the U.S. Department of Health and Human Services has not made a distinction when it comes to classifying physical activity engagement levels between the general population and the veteran population, with all individuals utilizing the 2008 *Physical Activity Guidelines for Americans* as the standard for which such levels are measured CDC, 2008; Ford, Henderson, & Handley, 2010; NIH, 2016, p. 201).

As long as the veteran population continues to exhibit decreased physical fitness, the cost of care to veterans will continue to grow while wait times continue to elongate as a result of compounding health issues. Such issues cost more, which is in turn passed on to the rest of the population in the form of taxes; the current funds are not of a high enough magnitude as it is, for otherwise such veterans would not experience such high wait times, further compounding the issue. It is in society's best interests to work to

correct this problem before it becomes unmanageable; with the insights presented herein, the foundation is laid for the exploration of the responses received from veterans regarding this most important societal matter. The tables in Appendix A indicate the beneficence of such studies and the ability of the studies to provide the necessary foundations through which the study is based.

Chapter 3: Research Method

Introduction

The purpose of this research study was to determine how the thoughts, perceptions, and behaviors of veterans affect their physical fitness levels following their time in the service as explored using social cognitive theory (Bandura, 1986, 1989). This chapter provides insight into the research methodology used in the completion of the study. Among the different areas addressed within the contents of this chapter are the research design, the appropriateness of the design, the instrumentation, research questions, population and sample, and the procedure used to complete the study. Further information presented include the methods of data collection, data analysis, ethical considerations, and the operational definitions of the study variables.

Research Design

The research design chosen for the completion of this study was a qualitative case study. Qualitative research is used to explore behavior by collecting, analyzing, and interpreting the words and actions of individuals or groups (Yin, 2011). As a previously unstudied phenomenon using qualitative research, postservice physical activity in veterans explored with social cognitive theory, can be best studied with an approach that explores thoughts, perceptions, and behaviors of veterans that can potentially affect their physical fitness status. At this point, as most of the studies on this topic have been quantitative, more information is needed, therefore necessitating the in-depth analysis found in case study research. Based on the definition of a qualitative case study, this type of research strategy examines a real-life event in depth, understanding the importance of

variances in the contextual conditions that brought about the event (Yin, 2009). Consequently, a case study approach was the most suitable choice for exploring the phenomenon under study.

Role of Researcher

Because this was a qualitative study, I served as the primary data collection tool by inviting and recruiting the potential participants; designing the interview protocol; conducting interviews; and coding the interview data into categories and themes. While it was originally possible that I may have known some of the veterans, there would have been no supervisory relationship with them. Following the completion of the data collection phase, none of the participants had been known to me before the completion of the study. Also, I confirm that there was no conflict of interest or power differentials between the participants and myself. I conducted this study in such a manner that the place, time, and way of the qualitative interview were the most convenient to the participants.

Instrumentation

The interview protocol used in the completion of this study was created by me as the researcher (Appendix B). The panel of experts reviewed the interview protocol, indicating if they felt there were any concerns with the questions detailed, much in the same manner a peer-review process is completed for publication in an academic journal. The interview protocol consisted of questions designed to collect qualitative data and some quantitative data, such as demographics. These questions were designed to ensure

that the appropriate information be collected to ensure that the research questions may be answered in full.

Research Questions

The research questions identified for resolution in the conduction of this study were as follows:

1. What are veterans' expectations about physical activity, and how do these expectations affect their postservice physical activity?
2. What are veterans' perceptions on self-efficacy about physical activity, and specifically on self-efficacy in overcoming barriers to physical activity, and how do these perceptions affect their postservice physical activity?
3. What are veterans' perceptions on self-control associated with physical activity, and how do these perceptions affect their postservice physical activity?
4. What are veterans' perceptions on how environment may affect their postservice physical activity?
5. What are veterans' perceptions regarding the effectiveness of their emotional coping as it pertains to their postservice physical activity?

Population and Sample

The population of the study consisted of the totality of the veteran population in the United States. As of 2015, there were 18.8 million military veterans in the United States (U.S. Census Bureau, 2016). This translates to approximately 13% of the adult population (Newport, 2012). Overall, as of 2012 24% of the male population and 2% of

the female population were veterans (Newport, 2012). The majority of veterans were over the age of 65, though 12% of men between the ages of 25 and 34 were veterans (Newport, 2012). This total population makes up the sample universe, the pool from which the potential participants originate (Robinson, 2013).

The sample size is determined through the combination of practical and epistemological considerations (Robinson, 2013). To ensure that there was a large enough sample and that data saturation was met (Mason, 2010), data were collected from 11 participants; this sample size also took into consideration the time constraints placed upon the study. A qualitative study employing the use of interviews as the primary method of data collection should ideally have a minimum of five participants, with saturation documented as being attained in multiples of 10 (Mason, 2010). The sample population consisted of both male and female veterans, over the age of 18, all of whom agreed to participate in the study and gave both written consent and verbal consent to the taping of the interviews for later transcriptions. No limitations were placed on the sample based on age, gender, sexuality, race, religion, or creed. Participants were excluded if they were under the age of 18, were active duty or otherwise have not attained veteran status, and who have not served in one of the branches of the U.S. military (i.e., if the individual was a veteran of another country's military, he or she met the exclusion criteria). The sampling strategy, referring to the way participants were selected for inclusion in the study, was convenience sampling (Robinson, 2013). The first 10 to 15 individuals who were willing to participate in the study were not excluded by exclusion criteria and who fulfilled the inclusion criteria comprised the sample. Sample sourcing

occurred using advertising and through contacting those of veteran status directly (Robinson, 2013). All participants were required to provide signed informed consent forms, and no incentive was provided for participation as a means of working to reduce the potential for bias (Robinson, 2013).

Procedure

To provide an overall statistical perspective of results, participants completed an interview requesting the provision of demographic information including the time in service age, the gender, race, and socioeconomic status. Additional questions were included that requested information on the participant's health status, the perception of physical fitness, the perception of adequacy of activity, types of activities engaged in, the frequency of activities engaged in, and whether changes have occurred within their physical fitness routine from the time that they were in the service to now. All participants were required to give their written informed consent before being able to participate in the study and participants could remove themselves from the study at any time with no penalty. IRB approval was necessary to conduct this research study.

Data Collection

Data were collected over the course of a 1-month period. Veterans could complete an interview in my presence as the researcher or by phone or Skype. The interviews lasted about 45 to 60 minutes and were performed in a private place if conducted in person. Participants were invited purposefully using social media and flyers, and by also applying a snowball sampling technique. The flyers were placed on public VA bulletin boards and distributed to individuals in public places, therein indicating the reason for the

study. It was believed that boredom and delays in treatment would be the highest influencing factor in the completion of the interviews. Only individuals who provided their full informed consent, either electronically or in writing, depending on the method that the individual preferred to use to complete the study, had their data used in the completion of this study.

Consent was given verbally on recording by participants for auditory recording of the interview process only; no video or another form of recording was completed. For in person interviews, a recorder was used; for phone interviews, a handheld recorder was used in conjunction with the speakerphone option on the telephone used. For Skype interviews, the audio recordings were completed on the computer. Following the setup of the semistructured interviews, which were scheduled at the time best suited to the individual and his or her schedule to both decrease the potential pressures of the study on the participant and increased his or her likelihood of participation, the audio recordings of the interviews were transcribed by me, the researcher. This process was completed within 48 hours of the completion of the interview itself. I then waited 24 hours and read the transcript while listening to the recording to confirm its accuracy before sending the transcript to the participants for member checking. Once the participants confirmed the accuracy of the transcripts, any contact information was redacted to maintain participant confidentiality.

Data Analysis

All qualitative data collected were analyzed using thematic analysis (Creswell, 2014). This type of analysis allows for the identification of emergent themes within the

context of the collected data (Creswell, 2014). To accomplish this task, the collected data were coded with different colors based on the emergent themes and in light of the specificity of those themes to provide the requisite answers to the research questions identified. All the interviews were recorded and transcribed verbatim. The qualitative data were analyzed manually, using manual coding completed in Microsoft Word. The quantitative data of the sample were presented with descriptive statistics, such mean and with frequencies (%) using SPSS, v.21 software.

Human Participants and Ethics Precautions

As human participants were used in the completion of this research, Walden IRB approval was necessary before the study could commence. The IRB approval number was 04-03-17-0140001. This worked to ensure that there were no ethical violations present in the completion of the research. Furthermore, all participants gave their written informed consent, either with their physical signature or with their digital signature, depending on the method that the individual preferred to use to complete the interview. No identifying information was collected on the individual, and the participants may have elected to remove themselves from the study at any time before the submission of their data; as no identifying information was present their results, it would have been impossible to identify their results once they had been submitted. All results are password protected, if electronic, and kept in a locked drawer if in paper form to ensure total confidentiality of results. All data will be kept for no less than a period of 6 months following the production of the completed write-up of the study.

Issues of Trustworthiness

To ensure the accuracy, validity, and reliability of data collected, all participants were asked to complete a member check of their data to confirm that the data were true and accurate, as known to the participant who provided the information (Harper & Cole, 2012; Torrance, 2012). The use of member checking worked to ensure the reliability and validity of the data collected in instances where human participants provide qualitative data that consists of opinions, perceptions, and or attitudes, working to increase study accuracy (Harper & Cole, 2012; Torrance, 2012). This process consisted of having the participants review the data that they have provided to ensure that what they have stated is what they meant and that there is no information left out in the completion of their explanations. Additionally, to increase the validity of the coding, an adequate intercoder agreement was achieved with the chair of the dissertation committee.

Summary

Through an identification of the research design, the reasons why that design is appropriate, and the procedure used in the collection of data in the research study, it becomes possible to understand the basic structure of the study. The re-identification of the research questions assists in detailing the content that I sought in the completion of such a study. The population and the sample, including the ethics precautions, are defined. Finally, a description of the instrumentation, the data collection process, and the data analysis process serve to create the blueprint on which it becomes possible to work, ensuring the successful completion of the study.

Chapter 4: Results

Introduction

The purpose of this research study was to determine how the thoughts, perceptions, and behaviors of veterans affect their physical fitness levels following their time in the service as explored with social cognitive theory (Bandura, 1986, 1989). This chapter will provide documentation of the results obtained from participants. The characteristics of the sample are presented, followed by identification of the thematic results that can be used to answer each of the identified research questions. Presentation of these analyzed results will lead to a discussion of the results, the conclusions, and the recommendations of the study in a subsequent chapter. The research questions were focused on the expectations and perspectives of veterans in their postservice life. Specifically, the research questions were the following:

RQ1: What are veterans' expectations about physical activity, and how do these expectations affect their postservice physical activity?

RQ2: What are veterans' perceptions on self-efficacy about physical activity, and specifically on self-efficacy in overcoming barriers to physical activity, and how do these perceptions affect their postservice physical activity?

RQ3: What are veterans' perceptions on self-control associated with physical activity and how do these perceptions affect their postservice physical activity?

RQ4: What are veterans' perceptions on how the environment may affect their postservice physical activity?

RQ5: What are veterans' perceptions regarding the effectiveness of their emotional coping as it pertains to their postservice physical activity?

Recruitment and Characteristics of the Sample

The recruitment process directly implemented the recruitment plan documented in Chapter 3. After receiving Walden's IRB approval, I provided flyers to veterans who were present outside of the VA facilities in the region. Flyers were placed on community bulletin boards. These flyers included my contact information and information on the study consistent with the information included in the informed consent forms.

The time period of data collection was approximately 2 weeks, lasting from May 7 to May 22 of 2017. The sample consisted of 11 participants. All participants were previously active duty service members in the U.S. military, and all participants had been discharged from active duty status and classified as veteran status. Participants ranged in age from 29 years old to 74 years old, with the majority of the participants falling between 30 and 48 years old. Eight participants identified as male, two participants identified as female, and one participant identified as other. Participants served as active duty between 3 and 23 years, with the average number of years of active duty service at 10.54 years. Participants indicated that their annual household income, combined for all household earning members, ranged from between $25,000 and $100,000+, with the largest number of participants falling into the $25,000 to $49,999 per year range and the $100,000+ range, respectively. Nine participants self-identified as White or Caucasian, while two participants identified as Latino or Hispanic. All participants indicated that they felt their current health status was either good or excellent, with four participants

indicating that they were in “good health,” and the remaining seven participants indicating that they were in “excellent health.” The participants represented a broad spectrum of ages, years in service, and socioeconomic statuses, but did not provide a broad spectrum of health statuses or racial statuses, both of which do have the potential to affect the results of the study. Table 3, below, illustrates the demographic profile of the sample.

Table 3

Characteristics of the Sample

Characteristic	Number of individuals
Previously served as active duty	11
Discharged from active duty status, classified as veteran	11
Average age	43
Under 30	1
30 – 45	6
46 – 50	2
Over 50	2
Male	8
Female	2
Other	1
Average years served	10.54
Served less than 5 years	3
Served 6-10 years	3
Served 10+ years	5
Annual yearly income (household) $25,000 - $49,000	4
Annual yearly income (household) $50,000 to $74,999	2
Annual yearly income (household) $75,000 to $99,999	1
Annual yearly income (household) $100,000+	4
White or Caucasian	9
Latino or Hispanic	2
Good health	3
Excellent health	8

Results by Research Question

Several different themes were identified following the manual coding of collected data. To ensure accuracy in presentation, each of the different research questions has been restated, with the corresponding resultant themes presented immediately following each research question. The chair of the dissertation committee reviewed the coding process to ensure that intercoder agreement was achieved and assisted in ensuring that no aspect of coding was overlooked or that no aspect of coding was too in depth, allowing for identification of emergent themes only. The results are presented based on the research question and include a summary table following each heading for ease in the identification of the themes presented.

RQ1: What are veterans' expectations about physical activity, and how do these expectations affect their postservice physical activity?

Table 4

Emerged Themes: Summary Table for Research Question 1

Themes	Quotations
Average amount of physical activity per day – 120 minutes	N/A – numerical responses only
Participants were, on the whole, realistic about their physical fitness levels about their situation	"Good." "Normal." "Extremely good, professional fighter."

To be able to document the different expectations held by veterans regarding their postservice physical activity, it was first necessary to determine the current levels of

physical activity engaged in by the participants. To accomplish this task, participants were asked to indicate the total approximate number of minutes that they engaged in physical activity per day, divided between physical activities related to work, chores, and so on, and physical activities related to recreational, exercise programs, and so forth. Seven of the participants indicated totals in both categories, work, and chores, and the like, and recreational and exercise and the like. Two participants indicated physical activity in only the recreational and exercise category, and the remaining two participants indicated physical activity only in the work and chores category. In cases where physical activity was indicated, that is, a total greater than zero, the minimum amount of time the participant spent engaged in physical activity was 20 minutes per day. The maximum number of minutes spent on a single day by a participant was 300. The average amount of minutes per day spent in physical activity was 120. With the identification of this fact, that all participants were highly active, with the majority engaging in physical activity 7 days a week, it became possible to gain a better understanding of the participants' expectations of their physical activity levels about their current physical activity levels.

Four of the participants indicated that they felt that their physical activity levels were better than they were expected to be at this juncture in their lives. One participant indicated that they were "at level" with their expectations, given their activity in the SEAL community, but stated that their running and sprinting capabilities have decreased over time. One participant did not indicate their physical activity levels regarding their expectations but instead indicated that they expected to be physically active in one way and are instead physically active in another. As the participant stated,

> I thought I would be a runner, but flat feet and bad knees made that sort of out of reach! Now I am a national and state record holding power-lifter. I knew I would always be active, and I have always been competitive; that just went a different route than anticipated.

The remaining five participants indicated that their expectations of physical activity were not in alignment with their current physical health status. Various reasons were given for these changes, including health issues; one participant was diagnosed with cancer and was currently wheelchair bound; another participant indicated that they were getting back to their desired health status after getting a CPAP machine which allowed them "to get more restful sleep at night," and another participant indicated that having a new child and being a full-time student was causing them to be, in their own words, "lazy."

Participants were asked to define their current physical fitness. Participants were, on the whole, realistic about their physical fitness levels about their situation. One participant stated that their levels were still "low, but getting better each week;" which was the participant who previously indicated that they had been diagnosed with cancer and were wheelchair bound. Others stated that they were "well above average, given age and gender," while still other participants stated that they were "good" or "normal." Many indicated that they still saw improvements, and two indicated that they felt as though their physical fitness was currently "lacking" or "infrequent," but again, these individuals were also individuals who were limited or who felt they were limited based on current outside influences that took up their time, such as school, children, and the like. The majority of participants indicated that they were comfortable with their current

physical fitness as compared to when they were on active duty, based on life changes. Many stated that they were in better condition when they were active duty, but there were two participants who stated that they were either in similar condition to when they were on active duty or were in better shape now that they are no longer on active duty. The participants appeared realistic in their assessments of their physical fitness levels based on age, life status, extenuating factors, and general wear and tear on joints and other body parts. Four participants felt as though they needed to increase their current levels of physical fitness, one indicated that they should be doing less, as they are getting older and they need to be more cautious about "age related overtraining and slower recovery" times. The other six participants indicated that they felt as though their current levels of physical fitness were adequate or sufficient to their current needs.

RQ2: What are veterans' perceptions on self-efficacy about physical activity, and specifically on self-efficacy in overcoming barriers to physical activity, and how do these perceptions affect their postservice physical activity?

Table 5

Emerged Themes: Summary Table for Research Question 2

Themes	Quotations
High or very high levels of self-efficacy.	"High degree, with few limitations." "100% positive ability to reach goals."
SMART goals present	" I have pretty good self-control, I find workouts to be soothing and calming, but the fact that I have a coach and a team I work out with that help keep me on track and accountable."

Participants were provided with a definition of self-efficacy before starting on this line of questioning. Self-efficacy was defined as referring to the belief of an individual that he or she will succeed in the accomplishment of a given task (Sharma, 2016). Participants were then asked to describe their beliefs regarding their ability to reach their targeted physical activity goals. One participant indicated that their level of self-efficacy was "mediocre," indicating that while they served in the Navy, they had an "external source of motivation" and were "conditioned to have other's expectations of physical activity versus self" expectations of physical activity. All other participants indicated that they were "very confident," or had "high" or "very high" levels of self-efficacy. One

individual indicated that their religious faith combined with “goal prescribed fitness limits” associated with the medical condition provided their self-efficacy, while others simply stated variations on the idea presented by Participant 4, namely “if started, then will achieve the goal.” The primary theme was that the matter was settled simply if the goal was set. If the goal were set, then the participant would achieve that goal.

Participants were asked to provide a better understanding of their goals and their measurability (SMART). Two participants stated that their fitness goals were non-specific, while the other nine participants stated that their goals were specific. Of those who indicated that their goals were non-specific, one participant stated that their goals were bound by their health condition, while the other stated that their goals were “broad,” and that they just wanted to “feel stronger.” The other nine participants provided definitive goals that they were striving for, ranging from working on reducing body fat to increasing muscle, while others still held themselves to the fitness standard of the branch of the military that they had served in as active duty. Others who indicated that their goals were specific provided general goals when asked to elaborate, such as wanting to increase strength, energy balance, or were just focused on “winning” the competitions that they were entering. Ten of the 11 participants indicated that their goals were measurable and were able to document the specifics associated with their physical activity levels that were measurable. The one individual who indicated that their goals were not measurable was Participant 7, the individual who stated that they were a full-time student and had a new baby. Regarding the lack of measurable goals, the participant

indicated that as there were no measurable goals set, there could be no aspects of those goals that were measurable.

All participants stated that their goals were results focused. When asked what their goals were most focused on, the responses were both mental and physical. Participants indicated awareness that the level of mental health of the individual was directly connected to the physical health of the individual. Many of the participants further elaborated to state that they wanted to focus on being healthy or being fit, focusing on maintenance of their bodies as a whole.

When asked if the goals were time-bound, the results were more mixed. Four of the participants indicated that their goals did not have a specific time in which they should be accomplished. These negatives were consistent with health conditions or other outside influences. The other seven participants indicated that their goals were time bound, and these too were consistent with competitions and other outside influences on the lifestyle of the individuals. All but one participant indicated that their results were achievable. The individual who stated that their goals were not achievable indicated that they answered in this manner because the goals were "ongoing," meaning that they were not time bound, they were generalized focused on basic health and wellness and were unending. All other participants indicated that they felt as though their goals were achievable because the goals were "realistic," with some of the responses indicating that the goals were achievable because they were already being met, because they knew their limitations, or because they had "available time with realistic recommendations." The

participants were aware of what they could accomplish, and the goals they set were in line with their knowledge of their general limitations.

RQ3: What are veterans' perceptions on self-control associated with physical activity and how do these perceptions affect their postservice physical activity?

Table 6

Emerged Themes: Summary Table for Research Question 3

Themes	Quotations
Had high levels of self-control.	"Strong level of self-control other than procrastination, family or weather." "I have pretty good self-control, I find workouts to be soothing and calming, but the fact that I have a coach and a team I work out with that help keep me on track and accountable."

Participants were next asked to explore their levels of self-control when it came to physical activity. They were asked to identify, in this description, whether they felt they had little to no self-control, a strong level of self-control, or somewhere in between, and were asked to identify their influences when it came to self-control in physical activity. One participant indicated that they had a "mediocre" level of self-control when it came to physical activity, citing a "lack of external motivator" as their reason for that response; however, it should be noted that this is the individual who also stated that they were

going to school and had a new baby. Two participants indicated that they had “somewhat self-control” with one stating that “self-motivation is key, (but) lacking;” and both of these participants indicated or alluded to the idea that they were affected by their emotional state when it came to their self-control regarding physical discipline. The other participants stated that they had higher levels of self-control, without a clear unifying identifier, but that their self-control was “great,” “extremely high,” “pretty good,” and the like. All indicated or alluded to the fact that they were disciplined and the “habit” of physical activity ensured that they continued to engage in higher levels of self-control when it came to staying active.

RQ4: What are veterans' perceptions on how the environment may affect their postservice physical activity?

Table 7

Emerged Themes: Summary Table for Research Question 4

Themes	Quotations
The environment of participants was not a defined factor by veterans as affecting their postservice physical activity. Those who identified environmental influences addressed literal environment.	"Getting warmer, don't want gut to be showing. Don't want to look like a slob outdoors during the summer months." "I think psychologically, and environmentally cardio is difficult because I have such bad allergy problems that breathing during cardio is difficult for me. And I am unfortunately allergic to things that are nationwide, worldwide in fact. The weird thing is they just got way worse in a year or so before I retired, and have continued to get worse since getting out."

Participants were asked, "If you believe that you should be more active than you are, please provide some factors (psychological, environmental, material, etc.) that you think could help you to achieve this goal." Based on the results obtained as a result of this question, the question itself should have been reworded to provide a more effective

response in this area, particularly as participants indicated that the majority of the eleven felt their current levels of physical activity were sufficient unto their needs. In spite of this, only four participants indicated that the question was not applicable to them, leaving seven participants who responded, in spite of the fact that only four participants indicated that they should increase their levels of physical activity and one indicated that they should decrease their current levels of physical activity. The seven answers received can be loosely divided into several different themes. The first theme was "I have everything under control," which was indicated by one individual. The second was physiological; wherein one participant indicated that their allergies posed a problem, while the other indicated that they need to focus more on recovery from physical activity instead of the activity itself. The third theme was environmental, where one participant referred to the changing seasons as causing allergic reactions and the other indicated that summer was coming. The fourth theme was vanity. One participant indicated that they did not "want to look like a slob," or "want (their) gut to be showing." Another stated that they wanted to be seen as a winner in their next MMA fight. The fifth theme was a need for an external motivator or increased self-motivation, expressed by two participants. The final comment was a need for new shoes to become more active again. The reasons given regarding environmental were not many and were primarily tied to physiological complaints or concerns. This indicated that instead of viewing the environment as the physical space in which the individual interacts with different components, environmental was seen as seasonally based. Should the study be recreated in the future, it will be necessary to explore a better means of obtaining an answer to this question,

complete with an explanation of the environment and its inclusion of the physical space in addition to the interactions between parties within that space or area in which the individual lives or operates.

RQ5: What are veterans' perceptions regarding the effectiveness of their emotional coping as it pertains to their postservice physical activity?

Table 8

Emerged Themes: Summary Table for Research Question 5

Themes	Quotations
Exercise plays a large role in the emotional coping strategies of participants	"I would say exercise helps quite a bit in managing stressors. I always notice physically and emotionally when I have taken too much time off working out. Because of working out I remain fairly even tempered. I know that when I was still enlisted and on recruiting duty and had a very difficult time finding time to work out, and a difficult time regulating my mood and temper." "That is why I work out like a BEAST. In Afghanistan, I worked out every day, and this routine remained until this day."

Participants were provided with a definition of emotional coping, with the term explained as referring to the ability of the individual to effectively manage stressors that may otherwise seem uncontrollable, including how they might handle negative feelings or emotions that they may experience (Sharma, 2016). After being presented with the definition, participants were asked to indicate how they would describe the effectiveness of their emotional coping as it pertained to the physical activity that they engaged in. When it came to emotional coping, the answers were highly varied. One participant indicated that religion aided them in emotional coping, but did not relate their response to physical activity. Five participants indicated that exercise and working out was key to managing the stressors in their lives. One participant indicated that their emotional coping was "excellent," but did not provide any additional information or explanation as to how their emotional coping related to physical activity. One stated "very much helps as coping with stressors, in addition to church" while another participant stated "part of total body health, including mental wellness. Body health and mental wellness play into each other." Another stated, "very well, equanimity." Still, another stated that their emotional coping was "reasonably effective, with some anxiety resulting from barriers to physical activity." As this particular question did not provide clear ties between emotional coping and physical activity for six of the participants, it is possible that the question itself should be reassessed or rewritten or broken down into multiple sub-questions, should this study be recreated. Even still, approximately half of the participants indicated that their emotional coping strategies were linked to their physical activity levels, which does serve to indicate that the question was answerable, and does

serve to indicate that there was a connection between the emotional coping strategies of the participants and their physical activity levels. Further research as to the relationship between emotional coping and physical activity could be explored within the context of future studies within the veteran population.

Additional Commentary

Participants were asked, as the final question of the interview process, "to what extent do you see physical fitness as a common problem faced by veterans, and how should the Veterans' Administration assist?" While this question does not wholly fit into any of the research above questions, the presentation of these results and any themes associated with the responses obtained is pertinent to the completion of the study, and as such is being included under an additional sub-heading. All participants were more than willing to provide a response to this question, and all participants were rather loquacious in their responses, perhaps more so than to the other questions asked throughout the data collection process. The perspectives of the veterans on physical activity were perhaps more prominent in this area than in response to the other questions asked, but they were non-specific to the participants themselves, making it ineffective to place them as themes under any of the primary research questions. Given the unique nature of the responses, the responses have been presented first in their original format, the verbatim response to the question of the participants from the transcripts themselves. The responses are documented as follows in Table 9:

Table 9

Veteran Perceptions on VA Actions

Participant	Response
Participant 1	It's hard for me to imagine why the VA doesn't have fully-funded fitness classes at the main branches around the country!
Participant 2	I think that the VA would do well to employ some really good, dedicated, personal fitness trainers, or perhaps work out deal with gyms so that veterans have access to them inexpensively or even free, (If they don't live near a base where they can use the gym) and allow veterans to find personal fitness trainers that can help them reach their goals, and then submit a the name to the VA and allow the VA to validate the trainer and then contract that person to provide training, and pay them. I think the overall cost to benefit analysis would be quite positive, keeping veterans healthier, with fewer issues the VA needs to help with.
Participant 3	I don't know; every situational is very different. To me working out keeps me from getting stiff in my joints.
Participant 4	A lot of service members get lazy post service. No group physical training post service. Look into a new veterans post service PT program or local military installation gym access for 2 to 3 years.
Participant 5	Free access to a gym. Similar support as to what is provided to the wounded warriors. Wing of VA to provide slight promotion of physical activity.
Participant 6	Obese while in uniform… The concern with veteran's awareness and access to services. VA partnering with local fitness centers, personal trainer targeting the younger veterans. Older veterans combined with silver sneakers.
Participant 7	Many veterans see the prior terms of employment and current age factor(realistic functionality). Increase access to wounded warrior type of programs and awareness of current programming.
Participant 8	VA build gym free of charge for honorable discharged veterans, no frills.
Participant 9	Veterans should be personally responsible for their fitness. Develop community to support.
Participant 10	Group physical training to have fun and reconnect with a smart team.
Participant 11	Low PA factor to chronic diseases. Higher EPs for intervention and prevention

It quickly became clear that the veterans had very distinct ideas as to how they felt the VA should respond. Some were realistic to the situation of veterans in the United States, while others appeared to be strongly influenced based on the personal perceptions of the participant regarding how a veteran should act. Many felt as though the VA should provide either gyms or fitness classes to veterans, while others felt that a community oriented approach, allowing veterans to get together to support one another in the attainment of their desired physical activity levels was the more appropriate course of action. Still, others believed that all or many members become lazy once they get out of the service, and still others had concerns regarding the current state of physical activity for those who are active duty. Of a lesser opinion was the idea that it is the responsibility of the veteran to take control of their physical activity and that they should do so without outside assistance, forming their support groups if they need a team to work in. Others recognized that the situation of each veteran is different and that this should be taken into account when looking at the activity status of veterans, based on health conditions and outside influences. The majority of participants thought that more physical activity programs should be created, and that all veterans should have some form of support in order to attain their physical activity levels, even tailoring some of those support options to ensure that those who are limited based on condition or circumstance would still be able to achieve their desired goals.

Summary

In Chapter 4, I presented the results that were obtained from the completion of interviews of those within the veteran population in the United States for the purposes of

exploring the thoughts, perceptions, and behaviors of veterans and the effects of the same on the physical activity levels of those individuals following their transition from active duty status to veteran status. The characteristics of the sample were explored first, allowing documentation of the demographic characteristics of the eleven participants. Participants ranged in age from 29 to 74 years old and ranged in years of active duty from 3 years to 23 years, with the average amount of time in active duty as 10.54 years. Participants were of various socioeconomic statuses, but the majority were either of a high socioeconomic status or a low socioeconomic status. Participants were either White or Caucasian or Latino or Hispanic. This lack of uniformity across the range of racial demographics and socioeconomic statuses does have the potential to indicate skewed data. Furthermore, there were issues identified with several of the questions on the instrumentation, issues that were not noticeable during the field test of the instrument, but which were manifest when applied within the target participant group. This indicates the need for further adjustment to the instrument, should the study be recreated.

Presentation of the results was divided between the characteristics of the sample and the results generated by theme, as presented under and associated with each of the five research questions identified for resolution during the study. The research questions focused on the expectations and perspectives of veterans in their postservice life. Participants, on the whole, had realistic expectations for physical activity levels post service, had a strong understanding of the need for mental and physical balance in physical activity, and were clear in their goals. Goals met the SMART requirements, on the whole. While there were a few exceptions to the situation, the goals set forth by the

participants were specific, measurable, achievable, realistic, and time-oriented. Participants also had strong ideas as to how the VA could work to improve the current state of physical activity in the veteran population, even though the majority of the participants were not in situations that applied to or consistent with the decreases in physical activity levels in veterans that have been reported nationally.

Chapter 5 will allow me to present a discussion of the results in conjunction with the current body of literature, synthesizing the collected information into the current narrative created by recently published works as explored in Chapter 2. This synthesis will be followed by the documentation of the answers to the identified research questions and the conclusions of the study. Also, Chapter 5 will allow me to discuss the recommendations for future study and the recommendations for application of knowledge, and the recommendations for future modifications to this study. The documentation of each of these three different types of recommendations not only serves to provide insight into the further actions that should be taken on the part of a future researcher but offers insight for future researchers that can be used to improve their studies or to continue to further the current topic of exploration.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this qualitative case study was to determine how the thoughts, perceptions, and behaviors of veterans affected their physical fitness levels following their time in the service, as explored using social cognitive theory (Bandura, 1986, 1989). The study was conducted in light of increasing concern over the rising health concerns within the veteran population and the seeming lack of effective programs by which it would become possible for the VA and/or the DoD to decrease the problem (Callahan, 2009; Joseph et al., 2016; Klingaman et al., 2014; Xia et al., 2016). In seeking to complete the study, the underlying perceptions of veterans regarding their physical fitness levels and any changes that may have occurred therein following discharge from active duty were explored.

Analyzed data showed that, on the whole, participants had realistic expectations for physical activity levels, displayed a strong understanding of the need for mental and physical balance in physical activity, and had clear goals to maintain their physical fitness levels post service. While there were some exceptions, overall, the goals set forth by participants regarding physical fitness were specific, measurable, achievable, realistic, and time-oriented (SMART). Participants likewise expressed strong sentiments regarding different suggestions as to how the VA could work to improve current physical activity and physical fitness levels within the veteran population.

In Chapter 5, an interpretation of the findings, the limitations of the study, recommendations for further research, and the implications of this collected data will be presented. The culmination of this chapter is in the conclusions section of this chapter.

Interpretation of the Findings

While the presentation of study results is vital to the completion of any study, results by themselves are insufficient. For the results to provide meaningful use within the field of study, they must be explored within the context of knowledge within the discipline of study, allowing for others to see how the results of the newly completed study compare about the current body of literature. Further, the results must also be explored and interpreted within the context of the theoretical framework of the study itself, in this case, social cognitive theory.

All the veterans interviewed during this study indicated that they believed that the VA could do better in working to assist veterans in improving their overall health status. The VA has had mixed results regarding the interventions that they have attempted to assist veterans with weight management and health status (Dahn et al., 2011). Participants indicated that if they could work together, in groups in their area, the likelihood of improved health status would increase, and that if the VA were to provide facilities that could be used toward that end, so much the better. The VHA, VA, and DoD have all attempted to work to address the physical fitness levels of veterans, but all attempts appear to fall short of creating an effective and unifying solution (Dahn et al., 2011; Locatelli et al., 2012; VA, n.d.). These efforts appeared to fail as a result of a lack of resources, a lack of effective communication regarding the availability of the

programs, difficulties associated with red tape and other beaurocratic concerns regarding entry into the programs, and other similar issues (Dahn et al., 2011; Locatelli et al., 2012; VA, n.d.). The completion of this study, it was hoped, would serve to provide information that would allow for the creation and implementation of these types of programs to be more effective, by obtaining the information from the group of people that those programs are designed to benefit. Thus, in this area, in spite of discrepancies between the overall veteran population and the population of this study regarding health status and the fact that no participants in the study were overweight or considered themselves to have low levels of physical activity, there is an alignment with the current body of literature.

Exploring the findings of the study and interpreting them within the context of Bandura's (1977, 1986, 1989, 2001) social cognitive theory and his theory of self-efficacy provided insight into the mindset of the individual being interviewed, allowing me, as the researcher, to understand how the interviewee may have come to an altered perception of the nature and importance of physical fitness following retirement or discharge from military service. To be able to expressly interpret the results of the study through the lens of the theoretical framework, participants were asked specific questions about different aspects of social cognitive theory and self-efficacy theory. When it came to the participants' self-reported levels of self-efficacy, the belief of the individual in his or her capacity and ability to execute the different behaviors necessary to produce a specific performance goal or attain the desired result (Bandura, 1977), the self-efficacy of participants were reported as markedly high. Indeed, through the exploration of the participants' respective goals and perceptions, it was found that not only were

participants levels of self-efficacy reportedly high, the goals set forth by the participants met the SMART criteria, and were, according to the participants, consistently being met. Furthermore, those who experienced certain limitations, primarily as a result of health status or recent change in health condition, were still setting physical fitness goals for themselves and attaining those goals, even if they admitted that they would need to do more in order to get back up to their previous levels or their currently desired levels.

Within the context of social cognitive theory, Bandura expanded on his previously generated theories to suggest that the individual's knowledge, and ability to acquire new knowledge, could be directly related to his or her observations of others through social interaction, experience, and any or all outside influences (Bandura, 1977, 1986, 1989, 2010; Zimmerman & Schunk, 2003). In the application of social cognitive theory, within the context of the study results, it became possible to predict self-care behaviors of the individual (Chen et al., 2015). From prediction of the behavior of one, those predictions for each could be synthesized into the predictive behaviors of the group, in this case, the participant group. Given the realistic perceptions of the veterans interviewed for the completion of this study, their awareness of their physical limitations, their goals, their current physical fitness levels, and their efforts toward the attainment of specific milestones within their health status, the prediction of the behaviors of this group of individuals becomes possible. Within the current veteran population, there was shown a desire to remain active, to continue to achieve, to work toward the accomplishment of goals. A great deal of academic literature only refers to the idea of desire about sexuality. However, the term *desire* is defined by Merriam Webster as the feeling of wanting

something. Thus, Bandura's (1977) self-efficacy theory referring to the capacity of the person and his or her ability to execute the behaviors necessary to attain the desired result, applies within this context. Bandura (1977, 1986 tied self-efficacy, which at its core is associated with the ability to attain the things desired by the individual, to the concept of motivation, the drive to attain those desires. Within the study population, there was motivation in a general sense, but analyzed results showed that specific motivations require an additional external influence to continue to push that drive. If this same behavioral pattern can be found within the veteran population at large, the tailoring of an intervention designed to boost these activities, actions, and perceptions could be greatly increased.

Limitations of the Study

In Chapter 1 of the study, certain limitations to the study were presented, including the number of organizations present within the sample size, the different personality types present in the sample, the fact that data were only collected from individuals who were willing to participate in a research study, that the information collected was self-reported, and the use of a qualitative design. Following the completion of the study, some of the limitations identified were proven to be unfounded. Although the personality types of the participants were markedly uniform across the sample, indicating that the provided responses were as homogenous as possible, this can be considered as limitation in terms of the lack of diversity in this study sample. Limitations were still present because data were only collected from individuals who were willing to

participate in a research study, the fact that the information collected was self-reported, and the use of a qualitative design, all limitations that were discussed in Chapter 1.

In addition to these three remaining limitations, certain other limitations were identified during the research study. Focusing on the area of trustworthiness, all participants were asked to complete a member check of their data to confirm that the collected data were true and accurate, as known to the participant who provided the information (Harper & Cole, 2012; Torrance, 2012). Member checking is considered to be a reliable method through which a researcher can confirm that the data are trustworthy as perceived by the individual providing the information, that the data collected conform to the information that the participant desired to provide (Harper & Cole, 2012; Torrance, 2012). However, this circles back to the initially identified limitations, those still present within the context of this study, that data were collected only from those who wanted to participate in the study, and that the data collected was self-reported. Thus, while the participant agrees to provide an honest and truthful response, there is no form of checks or balances against this information, other than the participant's word that the information provided is true and accurate; as such, it is only the participant's word that the researcher has that labels that the data collected as trustworthy. Further quantitative data would be needed to confirm the accuracy of the statements, which leads to the recommendations to be made based on information collected throughout this study.

Looking for an interpretation of the findings of this study within the context of the current body of literature, it should be first noted that the population of this study was non-representative of the veteran population as a whole. Researchers have shown that the

health status of the veteran population in the United States is one causing mounting concern, given the number of veterans who are experiencing health issues is on the rise (Hoge et al., 2014; Hoerster et al., 2012; Reeves et al., 2016; White et al., 2016). The current body of literature showed that there have been notable differences in the health status of veterans, health behaviors, and the overall quality of life of veterans following their transition to a retired or discharged status (Hoerster et al., 2012). Within the study participants, however, there were very few individuals who experienced decreased health status or who displayed a noticeably decreased amount of physical activity; indeed, the majority of the sample pool, baring those who had been diagnosed with a serious medical condition or who had recently given birth, all indicated that they were highly physically active and that they were at or close to the same levels of physical fitness that they had achieved while on active duty.

Recommendations

Recommendations can come in two forms, recommendations for areas of future research and recommendations for implementation in practice. Within the context of this study, foundational information was gathered. While additional information is needed to generate effective recommendations for implementation into practice, there are still some recommendations for implementation into practice that can be offered. Specifically, in order to improve the overall quality of life and health status for veterans, social workers working with veteran populations can facilitate the creation of workout groups or workout buddies within the general population. The creation of these groups or partnerships would serve to provide the additional motivation needed for veterans to

work to maintain or improve their physical activity levels, even though the creation of these groups or partnerships would not be provided with a location in which to work out specifically. It is further recommended that group chats or message boards be setup through the service administrations serving these populations to allow individuals to be able to connect locally with others in the area toward the purpose of increasing physical activity levels. While these recommendations for areas of future research may seem small, further research in this area is still needed to collect the remainder of the information necessary to effectively formulate large scale recommendations for implementation into practice.

Now that data have been collected from participants who have self-reported their levels of physical fitness, it is recommended that the next step can be taken; specifically, that the study be recreated with a quantitative component, taking measurements from participants to compare them to the DoD standards for active military personnel, and then comparing their self-reported levels of physical fitness with the levels of physical fitness required by the DoD in order to determine whether or not such responses are in alignment with the quantitative data.

It is further recommended that additional quantitative studies conducted on this topic be completed with a larger sample size, allowing for a wider generalizability to the veteran population, and that steps are taken to ensure that participants are from all branches of the military equally, as opposed to in this study, where the specific military branch was not documented. The collection of this information could shed additional light on the health status of veterans to determine whether a relationship is present

between the branch of the military that he or she served in and the health status of the individual following their attainment of veteran status.

It is further recommended that additional information be gathered on the effects of the veteran's environment on the postservice physical activity of the veteran. This information, while requested during the interviews, was done in such a way that ultimately created a certain level of ambiguity to the question, decreasing the emphasis on the true environmental factors affecting veterans, and, as such, decreasing the number of answers obtained from veterans regarding this subject matter. By modifying the interview protocol to such a degree as to allow for a more specific question or more specific questions associated with the veteran's environment, it could become possible to more effectively explore the true effects of the veteran's environment on his or her physical activity, allowing for the future formulation of additional potential suggestions for practice implementation.

It is believed that the implementation of these recommendations will provide a greater applicability to the study data, while at the same time providing the insight necessary to start the process of creating interventions designed to assist in improving the physical activity levels and health status of the veteran population. Based on the results of this study alone, it appears the issue is not found within the mentality or the perceptions of the veteran population, but is present as a result of a lack of accessibility options, or unified activities. In other words, the veterans within the participant sample appeared to retain, regardless of age, the mentality that physical activity was important to mental health and overall wellbeing was present. Those who did not engage in their desired

levels of physical activity did so either because of lack of easy access to physical activity options, group or team activities, or their health status prevented them from being as active as desired. One participant indicated they felt, if the veteran were truly motivated, he or she would simply find a local group to engage in the physical fitness activities he or she desired, or if one is not present, should create the same, but if the ultimate issue is that a group is needed to provide the motivation necessary to engage in the activities needed to maintain a comparable physical fitness level to that of active duty status, this creates a situation in which there is no clear escape route due to mutually conflicting or dependent conditions, creating a paradox where there is no clear answer. To be motivated to participate, or to engage, a group must be present, but if no group is present, then the ability of the individual is stifled before it can ever be actualized. While suggestive of a possible start for an intervention, additional data is necessary, from a larger sample population, before such an idea can be confirmed or denied.

Implications

The implications of a study can be found in several distinct areas. These include, first, the potential of the study to affect positive social change, ensuring that such change occurs, or could occur, within the boundaries of the study; second, the implications in the areas of the methodological, theoretical, or empirical, complete with recommendations for practice, where possible. While, as indicated in the recommendations section, the amount of data collected thus far is not yet detailed enough to warrant the generation of large scale recommendations for practice, the small scale recommendations for practice, if implemented, would imply that the problem can be addressed piecemeal, and that the

implementation of small scale solutions could serve to provide benefits that, when magnified over time or a large population, could serve to increase the general physical activity levels within the veteran population. The implications of the study can also be explored within the areas of the potential to affect positive social change and the areas of methodological, theoretical, or empirical avenues.

The ability to affect positive social change is present in every action taken by an individual; in some cases, that potential is not only not actualized, it is actively reversed. Within the context of this particular study, the results collected do suggest that there is the potential for positive social change; that if enough additional data is collected through the implementation of the previously made recommendations, it will be possible to work with the VA in order to change or modify their current policies regarding health status in veterans, or to create new policies that can be used to work to shift the physical fitness levels of the veteran population in the United States to an improved physical fitness level. This would, in turn, translate into an improved health status level, decreasing the potential costs to the governmental organization as a whole and improving the quality of life for veterans. Improved physical activity levels and physical fitness levels would then imply decreased costs associated with care for certain health conditions, freeing up a portion of the VA budget to target those individuals who need a higher level of care which cannot be addressed by increased physical activity alone.

Furthermore, the vast majority of veterans indicated that by engaging in high levels of physical activity, the physical activity itself served as a strong emotional coping mechanism for each veteran. The implication that could be garnered from this

information is that if the appropriate intervention could be designed for the veteran population, following the completion of the aforementioned additional research necessary to effectively explore this topic, that not only could the physical health status of the individual be improved, but the mental health status of the individual, the veteran, could be improved as well.

The first clear theoretical implication of the data collected is that Bandura's (1977, 1986, 1989, 2010) theory, in spite of being considered somewhat antiquated in terms of academic literature, still holds strong as the seminal source in areas of social cognitive theory and self-efficacy, and that the underlying behaviors that provided Bandura with the information necessary to create the theory are still present within current society (Zimmerman & Schunk, 2003). This is confirmed by the previously presented results, wherein participants indicated that it was their levels of self-efficacy and the application of the different components of social cognitive theory, that led to their continued participation in physical activities, including running, weight lifting, and endurance. This implies that the theory still retains its relevancy. It further implies that, with the collection of additional data in this particular area of study, the theory could likewise serve as the theoretical foundation for the elongated study previously recommended herein.

From a methodological standpoint, the implications of the results of this study are primarily present in the ideation that no one study can provide all of the answers and that further data is needed. The implication is that, should enough data be collected, and a relationship is established between the self-reported data and quantitative data, that the

next iteration of the methodology used to study this topic could be sufficient to allow for the current field of study to advance beyond the theoretical and into the practical. By collecting as much information as possible, from as many veterans as possible, an organization known for its red tape and high level of associated frustration within the veteran population could be translated into something more useful to that population. Ultimately, the implication is that, through additional time, efforts, and research, this line of inquiry could provide hard empirical data that could be used to effect large scale positive social change in America.

Conclusion

Five primary research questions were asked through the course of this study, with the goal of using social cognitive theory to understand physical activity behaviors of veterans following their time in military service. Veterans' expectations about physical activity were realistic, allowing them to effectively engage in postservice physical activity that allowed them to maintain standards close to, or equal to, in the majority of cases, their service level physical activities. Veteran perceptions of self-efficacy were high when it came to their physical activity, and those perceptions had a direct effect on their postservice physical activity levels. Veteran perceptions of self-control as associated with physical activity varied somewhat, with those who had strong support structures present or who worked out with a team, a partner, or a group or as a part of an event or activity circuit maintaining higher levels of physical activity than those who engaged in solo activities or who did not have that same support structure. Questions regarding the effects of the environment on postservice physical activity levels of veterans were

somewhat ambiguous, resulting in responses that were less focused on aspects of the environment of the veteran and were more generalized assessments regarding physical activity. The vast majority of veterans indicated that by engaging in high levels of physical activity, the physical activity itself served as a strong emotional coping mechanism for each veteran, an area in need of further exploration.

Ultimately, a host of new information was collected throughout this study, particularly in light of the decreased focus on veteran perceptions within the current body of literature on the subject (Locatelli et al., 2012). However, as is the case with a great many research studies, this information has served to highlight the need for further study, leaving the ability to only suggest small scale changes at first, and highlighting the manner in which additional information collected could translate into further benefits for that veteran population over time. The veteran population has indeed shown a need for additional assistance, and a need has been shown for the creation of interventions that are specifically focused on improving the health status and physical activity levels within the veteran population (Hoge et al., 2014; Reeves et al., 2016; White et al., 2016). It would be unrealistic to assume that a single study could work to address the problem in one fell swoop. This study can serve as one of the first steps in working to effectively target and address the matter. The answer ultimately lies within the veteran population itself; if that answer can be identified, then implementation by a bureaucratic organization should be possible if time-consuming. The veteran population knows which of their needs are not being met and has clear ideas as to how to improve the services being offered to them, translating those services into something more effective. By gathering information from

veterans directly, and taking that information and turning it into implemented solutions, this can turn into a better future for that population as a whole.

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Appendix A: CDC's General Physical Activities Defined by Level of Intensity

The following is by CDC and ACSM guidelines.

Moderate activity+ 3.0 to 6.0 METs* (3.5 to 7 kcal/min)	**Vigorous activity+** Greater than 6.0 METs* (more than 7 kcal/min)
Walking at a moderate or brisk pace of 3 to 4.5 mph on a level surface inside or outside, such as • Walking to class, work, or the store; • Walking for pleasure; • Walking the dog; or • Walking as a break from work. Walking downstairs or down a hill Racewalking—less than five mph Using crutches Hiking Roller skating or in-line skating at a leisurely pace	Racewalking and aerobic walking—5 mph or faster Jogging or running Wheeling your wheelchair Walking and climbing briskly up a hill Backpacking Mountain climbing, rock climbing, rappelling Roller skating or in-line skating at a brisk pace
Bicycling 5 to 9 mph, level terrain, or with few hills Stationary bicycling—using moderate effort	Bicycling more than ten mph or bicycling on steep uphill terrain Stationary bicycling—using vigorous effort
Aerobic dancing—high impact Water aerobics	Aerobic dancing—high impact Step aerobics Water jogging Teaching an aerobic dance class

Calisthenics—light Yoga Gymnastics General home exercises, light or moderate effort, getting up and down from the floor Jumping on a trampoline Using a stair climber machine at a light-to moderate pace Using a rowing machine—with moderate effort	Calisthenics—push-ups, pull-ups, vigorous effort Karate, judo, tae kwon do, jujitsu Jumping rope Performing jumping jacks Using a stair climber machine at a fast pace Using a rowing machine—with vigorous effort Using an arm cycling machine—with vigorous effort
Weight training and bodybuilding using free weights, Nautilus- or Universal-type weights	Circuit weight training
Boxing—punching bag	Boxing—in the ring, sparring Wrestling—competitive
Ballroom dancing Line dancing Square dancing Folk dancing Modern dancing, disco Ballet	Professional ballroom dancing—energetically Square dancing—energetically Folk dancing—energetically Clogging
Table tennis—competitive Tennis—doubles	Tennis—singles Wheelchair tennis
Golf, wheeling or carrying clubs	––––

Softball—fast pitch or slow pitch Basketball—shooting baskets Coaching children's or adults' sports	Most competitive sports Football game Basketball game Wheelchair basketball Soccer Rugby Kickball Field or rollerblade hockey Lacrosse

Volleyball—competitive	Beach volleyball—on sand court
Playing Frisbee Juggling Curling Cricket—batting and bowling Badminton Archery (nonhunting) Fencing	Handball—general or team Racquetball Squash
Downhill skiing—with light effort Ice skating at a leisurely pace (9 mph or less) Snowmobiling Ice sailing	Downhill skiing—racing or with vigorous effort Ice-skating—fast pace or speedskating Cross-country skiing Sledding Tobogganing Playing ice hockey

Swimming—recreational Treading water—slowly, moderate effort Diving—springboard or platform Aquatic aerobics Waterskiing Snorkeling Surfing, board or body	Swimming—steady paced laps Synchronized swimming Treading water—fast, vigorous effort Water jogging Water polo Water basketball Scuba diving
Canoeing or rowing a boat at less than four mph Rafting—whitewater Sailing—recreational or competition Paddle boating Kayaking—on a lake, calm water Washing or waxing a powerboat or the hull of a sailboat	Canoeing or rowing—4 or more mph Kayaking in whitewater rapids
Fishing while walking along a riverbank or while wading in a stream—wearing waders	––––
Hunting deer, large or small game Pheasant and grouse hunting Hunting with a bow and arrow or crossbow—walking	––––
Horseback riding—general Saddling or grooming a horse	Horseback riding—trotting, galloping, jumping, or in competition Playing polo

Playing on school playground equipment, moving about, swinging, or climbing Playing hopscotch, 4-square, dodgeball, T-ball, or tetherball Skateboarding Roller-skating or in-line skating—leisurely pace	Running Skipping Jumping rope Performing jumping jacks Roller-skating or in-line skating—fast pace
Playing instruments while actively moving; playing in a marching band; playing guitar or drums in a rock band Twirling a baton in a marching band Singing while actively moving about—as on stage or in church	Playing a heavy musical instrument while actively running in a marching band
Gardening and yard work: raking the lawn, bagging grass or leaves, digging, hoeing, light shoveling (less than 10 lbs per minute), or weeding while standing or bending Planting trees, trimming shrubs and trees, hauling branches, stacking wood Pushing a power lawn mower or tiller	Gardening and yard work: heavy or rapid shoveling (more than 10 lbs per minute), digging ditches, or carrying heavy loads Felling trees, carrying large logs, swinging an ax, hand-splitting logs, or climbing and trimming trees Pushing a nonmotorized lawn mower
Shoveling light snow	Shoveling heavy snow
Moderate housework: scrubbing the floor or	Heavy housework: moving or pushing heavy

bathtub while on hands and knees, hanging laundry on a clothesline, sweeping an outdoor area, cleaning out the garage, washing windows, moving light furniture, packing or unpacking boxes, walking and putting household items away, carrying out heavy bags of trash or recyclables (e.g., glass, newspapers and plastics), or carrying water or firewood General household tasks requiring considerable effort	furniture (75 lbs or more), carrying household items weighing 25 lbs or more up a flight or stairs, or shoveling coal into a stove Standing, walking, or walking down a flight of stairs while carrying objects weighing 50 lbs or more
Putting groceries away—walking and carrying especially large or heavy items less than 50 lbs.	Carrying several heavy bags (25 lbs or more) of groceries at one time up a flight of stairs Grocery shopping while carrying young children *and* pushing a full grocery cart, or pushing two full grocery carts at once
Actively playing with children—walking, running, or climbing while playing with children Walking while carrying a child weighing less than 50 lbs Walking while pushing or pulling a child in a stroller or an adult in a wheelchair Carrying a child weighing less than 25 lbs up a flight of stairs Child care: handling uncooperative young children (e.g., chasing, dressing, lifting into car seat), or handling several young children at one time	Vigorously playing with children—running longer distances or playing strenuous games with children Racewalking or jogging while pushing a stroller designed for sport use Carrying an adult or a child weighing 25 lbs or more up a flight of stairs Standing or walking while carrying an adult or a child weighing 50 lbs or more

Bathing and dressing an adult	
Animal care: shoveling grain, feeding farm animals, or grooming animals Playing with or training animals Manually milking cows or hooking cows up to milking machines	Animal care: forking bales of hay or straw, cleaning a barn or stables, or carrying animals weighing over 50 lbs Handling or carrying heavy animal-related equipment or tack
Home repair: cleaning gutters, caulking, refinishing furniture, sanding floors with a power sander, or laying or removing carpet or tiles General home construction work: roofing, painting inside or outside of the house, wall papering, scraping, plastering, or remodeling	Home repair or construction: very hard physical labor, standing or walking while carrying heavy loads of 50 lbs or more, taking loads of 25 lbs or more up a flight of stairs or ladder (e.g., carrying roofing materials onto the roof), or concrete or masonry work
Outdoor carpentry, sawing wood with a power saw	Hand-sawing hardwoods
Automobile bodywork Hand washing and waxing a car	Pushing a disabled car

~Occupations that require extended periods of walking, pushing or pulling objects weighing less than 75 lbs, standing while lifting objects weighing less than 50 lbs, or carrying objects of less than 25 lbs up a flight of stairs Tasks are frequently requiring moderate effort and considerable use of arms, legs, or occasional total body movements. For example: • Briskly walking on a level surface while carrying a suitcase or load weighing up to 50 lbs • Maid service or cleaning services	~Occupations that require extensive periods of running, rapid movement, pushing or pulling objects weighing 75 lbs or more, standing while lifting heavy objects of 50 lbs or more, walking while carrying heavy objects of 25 lbs or more Tasks are frequently requiring strenuous effort and extensive total body movements. For example: • Running up a flight of stairs while carrying a suitcase or load weighing 25 lbs or more • Teaching a class or skill requiring

• Waiting tables or institutional dishwashing • Driving or maneuvering heavy vehicles (e.g., semi-truck, school bus, tractor, or harvester)—not fully automated and requiring extensive use of arms and legs • Operating heavy power tools (e.g., drills and jackhammers) • Many homebuilding tasks (e.g. electrical work, plumbing, carpentry, dry wall, and painting) • Farming—feeding and grooming animals, milking cows, shoveling grain; picking fruit from trees, or picking vegetables • Packing boxes for shipping or moving • Assembly-line work—tasks requiring movement of the entire body, arms or legs with moderate effort • Mail carriers—walking while carrying a mailbag • Patient care—bathing, dressing, and moving patients or physical therapy	• active and strenuous participation, • such as aerobics or physical • education instructor Firefighting • Masonry and heavy construction work • Coal mining • Manually shoveling or digging ditches • Using heavy nonpowered tools • Most forestry work Farming—forking straw, baling hay, • cleaning barn, or poultry work • Moving items professionally Loading and unloading a truck

Source: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition and Physical Activity. *Promoting physical activity: a guide for community action*. Champaign, IL: Human Kinetics, 1999. (Table adapted from Ainsworth BE, Haskell WL, Leon AS, et al. Compendium of physical activities: classification of energy costs of human physical

activities. *Medicine and Science in Sports and Exercise* 1993;25(1):71-80. Adapted with technical assistance from Dr. Barbara Ainsworth.)

* The ratio of exercise metabolic rate. One MET is defined as the energy expenditure for sitting quietly, which, for the average adult, approximates 3.5 ml of oxygen uptake per kilogram of body weight per minute (1.2 kcal/min for a 70-kg individual). For example, a 2-MET activity requires two times the metabolic energy expenditure of sitting quietly.

+ For an average person, defined here as 70 kilograms or 154 pounds. The activity intensity levels portrayed in this chart are most applicable to men aged 30 to 50 years and women aged 20 to 40 years. For older individuals, the classification of activity intensity might be higher. For example, what is a moderate intensity to a 40-year-old man might be vigorous for a man in his 70s. Intensity is a subjective classification.

Data for this chart were available only for adults. Therefore, when children's games are listed, the estimated intensity level is for adults participating in children's activities.

To compute the amount of time needed to accumulate 150 kcal, do the following calculation: 150 kcal divided by the MET level of the activity equals the minutes needed to expend 150 kcal. For example:

150)3 METS = 50 minutes of participation. Generally, activities in the moderate-intensity range require 25-50 minutes to expend a moderate amount of activity, and activities in the vigorous intensity range would require less than 25 minutes to achieve a moderate amount of activity. Each activity listed is categorized as light, moderate, or vigorous by current knowledge of the overall level of intensity required for the average person to engage in it, taking into account brief periods when the level of intensity required for the activity might increase or decrease considerably.

Persons with disabilities, including motor function limitations (e.g., quadriplegia) may wish to consult with an exercise physiologist or physical therapist to properly classify the types of physical activities in which they might participate, including assisted exercise. Certain activities classified in this listing as moderate might be vigorous for persons who must overcome physical challenges or disabilities. ~Note: Almost every occupation requires some mix of light, moderate, or vigorous activities, depending on the task at hand. To categorize the activity level of your position, ask yourself: How many minutes each working day do I spend doing the types of activities described as light, moderate, or vigorous? To arrive at a total workday caloric expenditure, multiply the minutes spent doing activities within each intensity level by the kilocalories

corresponding to each level of intensity. Then, add together the total kilocalories spent doing light, moderate, and vigorous activities to arrive at your total energy expenditure in a typical day.

Appendix B: Instrumentation

Please answer questions below as honestly as possible and to the best of your ability. Please note that all responses are anonymous. Your participation is voluntary which means that you may choose not to answer any or all questions. Accuracy is important. There are no direct benefits to you in completing this interview. However, your responses will help in developing effective educational programs for veterans in the area of physical activity promotion.

Screening Questions

1. Have you previously served in the military under active duty status?

___ Yes

___ No (Does not meeting inclusion criteria: end interview and thank individuals for their time)

2. Have you been discharged from the military and are now at veteran status?

___ Yes

___ No (Does not meeting inclusion criteria: end interview and thank individuals for their time)

Demographic Information

3. What is your age (in years)?

___

4. Do you self-identify as:

___ Male

___ Female

___ Other

5. How many years did you serve in active military status? _____

6. Which of the following categories best describes your total annual household income (of all wage earners) before taxes?

___ <$25,000

___ $25,000 to $49,999

___ $50,000 to $74,999

___ $75,000 to $99,999

___ $100,000+

___ Prefer not to say

7. Do you self-identify as:

___ White or Caucasian

___ Black or African American

___ Latino or Hispanic

___ Asian

___ Multi-racial

___ Other

8. What is your current health status?

___ Poor health

___ Relatively healthy

___ Good health

___ Excellent health

10. How many minutes do you engage in physical activity each day?

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Physical activities related to work, chores, etc.							
Recreational, exercise programs, etc.							

11. How would you describe your current level of physical activity, in relation to where you *expected t*o be at this juncture in your life? Please provide an explanation as to what differences, if any, are present between your past expectations and your present reality regarding physical activity:

_____

_____

_____

12. Self-efficacy refers to the belief of an individual that he or she will succeed in the accomplishment of a given task. How would you describe your beliefs in regard to your ability to reach your targeted physical activity goals?

_____

_____

_____

13. I'd now like to ask you a few more detailed questions about your fitness goals.

a. Are they specific?

____ Yes

____ No

Would you elaborate, please, as to why you answered the way that you did?

_____

_____

_____

b. Are they measurable?

____ Yes

____ No

What aspects of your goals are measurable?

_____

_____

_____

c. Are they results-focused?

____ Yes

____ No

What results are your goals most focused on? Please respond by describing some specific examples of results.

_____

_____

_____

d. Are they time-bound?

____ Yes

____ No

e. Are they achievable?

____ Yes

____ No

Why do you believe they are/ are not achievable?

_____

_____

_____

14. What time constraints or time limitations are placed on the goals you have set for yourself at this time? Please provide some specific examples of these time limitations from your daily life.

_____

_____

_____

15. How would you describe your self-assessment of your current situation in relation to the accomplishment of your physical fitness goals? Do you find that your goal setting strategies could be better, or do you feel as though you are on track in setting and meeting effective fitness goals?

_____

_____

_____

16. How would you describe your level of self-control? Would you state that you have little to no self-control when it comes to physical activity, a strong level of self-control, or somewhere in between? What do you feel influences your self-control when it comes to physical activity?

_____

_____

_____

17. Emotional coping refers to your ability to effectively manage stressors that may otherwise seem uncontrollable, including how you might handle negative feelings or

emotions that you may experience. How would you describe the effectiveness of your emotional coping as it pertains to the physical activity that you engage in?

_____

_____

_____

18. How would you describe your current physical fitness?

_____

_____

_____

19. Next, could you please describe how your current physical fitness compares to when you served on active duty?

_____

_____

_____

20. Do you believe that you should be more active than you are, or do you believe that your current level of physical activity is sufficient to your needs?

_____

_____

_____

21. If you believe that you should be more active than you are, please provide some factors (psychological, environmental, material, etc.) that you think could help you to achieve this goal.

_____

_____

_____

22. To what extent do you see physical fitness as a common problem faced by veterans, and how should the Veterans Administration provide assistance?

_____

_____

_____

These are all the questions we have for you today. We thank you for your time!