2017

Use of technology to increase physical activity in female veterans and soldiers

Joan K. Riordan

USE OF TECHNOLOGY TO INCREASE PHYSICAL ACTIVITY IN FEMALE VETERANS AND SOLDIERS

by

JOAN K. RIORDAN, FNP-BC, MSN, RN

A SCHOLARLY PROJECT

Submitted in partial fulfillment of the requirements for the

Degree of Doctor of Nursing Practice

in

The Joint Doctor of Nursing Practice Program

of

The University of Alabama in Huntsville

The University of Alabama at Birmingham

The University of Alabama

to

The School of Graduate Studies

of

The University of Alabama in Huntsville

HUNTSVILLE, ALABAMA

2017

In presenting this scholarly project in partial fulfillment of the requirements for a doctoral degree from The University of Alabama in Huntsville, I agree that the Library of this University shall make it freely available for inspection. I further agree that permission for extensive copying for scholarly purposes may be granted by my advisor or, in his/her absence, by the Director of the Program or the Dean of the School of Graduate Studies. It is also understood that due recognition shall be given to me and to The University of Alabama in Huntsville in any scholarly use which may be made of any material in this scholarly project.

Joan K. Riordan 10/04/2017

Student Signature Date

SCHOLARLY PROJECT APPROVAL FORM

Submitted by Joan K. Riordan in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice and accepted on behalf of the Faculty of the School of Graduate Studies by the scholarly project committee.

We, the undersigned members of the Graduate Faculty of The University of Alabama in Huntsville, certify that we have advised and/or supervised the candidate on the work described in this scholarly project. We further certify that we have reviewed the scholarly project manuscript and approve it in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice.

100417 _____ Committee Chair
(Date)

_____

_____

_____

_____

_____ Program Director

_____ College Dean

12/5/17 _____ Graduate Dean

ABSTRACT

The School of Graduate Studies

The University of Alabama in Huntsville

Degree: Doctor of Nursing Practice College: Nursing

Name of Candidate: Joan K. Riordan

Title: Use of technology to increase physical activity in female veterans and soldiers

Heart disease is the leading cause of death for women claiming 289,753 lives annually in the United States. Studies have shown that female veterans become more sedentary after separating from service. Approximately 40% of female soldiers are overweight and 13% are obese. Cohort studies and randomized controlled trials have shown that mobile app users are more likely to monitor and increase their physical activity. The project integrated a modified feature into a freely available mobile application designed to increase amounts of physical activity in female veterans and soldiers. Pender's Health Promotion Model was used to design the project intervention, that was conducted using a closed discussion group in the *My Fitness Pal* mobile application. Thirty participants were recruited for the project; 16 enrolled in the group, and 9 completed both pre-and post-intervention surveys and postings to the group. Use of the discussion group did not demonstrate significant increases in pre- and post-intervention time exercised among veterans (M=.405, p=.686) or active duty participants (M=.730, p=.465). Statistically significant differences were demonstrated in average pre-intervention levels of activity by participants (p=.026) but not in average levels of activity post-intervention (p=.327). Further research regarding the influence of customized features of mobile applications upon physical activity is needed to inform best practices for implementing these evolving technologies within the clinical setting.

Abstract Approval:

Committee Chair _____

Program Director _____

Graduate Dean _____

Joan Riordan

Table of Contents

Appendices

Figures

Identification of the Problem

According to the National Center for Veterans Analysis and Statistics (2016), there are approximately 2,051,484 female veterans. In 2015, approximately 12% of female veterans sought care at Veterans Administration (VA) facilities (Veterans Health Administration, 2015). The Department of Defense (DOD) Military Healthcare system has over nine million patients to include active duty service members, retired veterans, and family members (Tanofsky-Kraff et al., 2013).

The number of female veterans is increasing, along with their risk of heart disease. According to the Centers for Disease Control and Prevention (CDC), heart disease claims approximately 289,753 women annually (2016). Recent studies have shown that female veterans may exhibit signs of heart disease at average ages six years less than male veterans (Davis, et al., 2015).

Each branch of the Armed Forces has specific regulations that govern physical training and body weight requirements. For example, Army body weight requirements are governed by *Army Regulation (AR) 600-9, The Army Body Composition Program (ABCP)* (2013). *AR 600-9* states that at minimum service members must be weighed every 6 months. The body weight standards of a service member are determined based on age and height. Service members that exceed the allowable maximum body weight undergo a body fat assessment which is based on age and gender (Department of the Army, 2013).

Service members that exceed the allowable body fat measurements are enrolled in the ABCP and screened for medical conditions that may contribute to the excess body weight. If a medical condition is identified the service member will be given six months for treatment and to

achieve a body weight within regulation. Service members that do not achieve a monthly weight loss of three to eight pounds, or 1% of body fat loss, on two consecutive monthly measurements or are still exceeding body fat requirements at six months will be considered to have failed the ABCP. At the discretion of the Commander, service members who fail the ABCP may be prohibited from reenlistment or separated from the military (Department of the Army, 2013).

Despite these requirements, the number of overweight service members has increased from 1.6% (1:60) in 2001 to 7.8% (1:13) in 2016 (Tilghman, 2016). Females who are Hispanic and African American veterans have the greatest prevalence of excess body weight; more than 10% of total female veterans are overweight (Tilghman, 2016).

After separating from service, amounts of regular physical activity tend to decrease in female veterans (Washington et al., 2016). Many cite the lack of structure and support as reason for the decrease in physical activity (Washington et al., 2016). Approximately one-third of female veterans do not participate in physical activity (Rose et al., 2013). Physical inactivity has been correlated with increased risks for cardiovascular disease and contributes to other comorbidities such as hypertension and hyperlipidemia (Baumann et al, 2012).

In 2006, the VA initiated a weight management program named: MOVE! The goal of the program is to decrease obesity and increase awareness of the importance of physical activity. Despite these efforts, less than 10% of eligible female and male veterans participate in the MOVE! program and only 19% have been successful in meeting weight loss goals. More than three-fourths of all veterans are still overweight and obese (Jay et al., 2016). In 2013, Army leaders launched the Performance Triad pilot program. The program focuses on three components: activity, nutrition, and sleep. Inactivity causes a ripple effect leading to overweight

and obesity increasing the risk of heart disease, placing a financial strain on our economy, the healthcare system, and national security (Tanofsky-Kraff et al., 2013).

The purpose of the DNP Project was to integrate a modified feature into a freely available web-based and mobile application to increase amounts of physical activity in female veterans and soldiers. The objectives of the DNP Project were: 1) enroll a maximum of 40 participants; 2) integrate a closed discussion group in the *My Fitness Pal* website; 3) use the *My Fitness Pal* closed discussion group observe for an increase in physical activity in female veterans and soldiers; and 4) determine if the closed discussion group would produce a sustainable increase in physical activity.

Review of the Literature

A focused search of the literature was conducted utilizing the PICOT (Population, Intervention, Control, Outcome, Time) question: In female veterans ages 19-64 (P), how does the use of mobile technology (I) increase physical activity (O) from baseline (C) over a three-month period (T). An initial search of CINAHL, MEDLINE, and Google Scholar utilizing keywords: heart disease and veterans, randomized controlled trials and women, physical activity monitors, physical activity and female soldiers, and mobile technology. The initial search yielded 370 articles. Filters were applied to select peer-reviewed, research articles, randomized controlled trials, and systematic reviews, narrowing the search to 25 articles. The articles were categorized into primary sources, secondary sources, clinical practice guidelines, or consensus statements.

Physical Activity in Female Veterans

Female veterans are among the thousands of Americans not getting the recommended amounts of physical activity (Washington et al., 2016). Despite the arduous physical

requirements, 40% of female active duty soldiers are overweight and 13% are obese (Tanofsky-Kraff et al., 2013). The VA reports that approximately 37% of male and female veterans are obese (Jay, Mateo, Squires, Kalet, & Sherman, 2016). These statistics are alarming and mirror the national trends. The decreased amount of physical activity coupled with poor food choices is associated with increasing the risk of heart disease in female veterans (Jay, Mateo, Squires, Kalet, & Sherman, 2016; Washington et al., 2016). The military and the VA have launched programs to provide support to veterans (Jay, Mateo, Squires, Kalet, & Sherman, 2016; Tanofsky-Kraff et al., 2013). However, the available behavioral health and lifestyle interventions can be labor intensive and difficult to maintain (Jay, Mateo, Squires, Kalet, & Sherman, 2016). Bauman et al. (2012) evaluated factors that promoted and inhibited physical activity in children, adolescents, and adults. The factors that influenced activity in adults were age, gender, self-efficacy, previous physical activity throughout the age continuum, availability of recreational facilities, transportation, and the environment. Other studies involving female veterans noted the lack of structure, social support, and motivation as factors inhibiting physical activity (Jay, Mateo, Squires, Kalet, & Sherman, 2016).

Use of Technology to Increase Physical Activity

The use of pedometers and a buddy system was evaluated over a 12-month period in Chinese women (n=399) who were randomized into four groups. At the conclusion of the 12-month interval, the group who used pedometers exclusively demonstrated significant increases in physical activity at the rate of 1820 MET minutes weekly (p <.0001, 95% CI [1360, 2290]). The buddy group also demonstrated significant increase in physical activity at 1260 MET minutes per week (p=<0.001, 95% CI [780, 17460])(Thomas et al., 2012).

A qualitative study of the weight management programs at VA noted that some veterans see fitness apps as motivational by providing immediate feedback while other veterans remain concerned about the security of mobile technology. The data from this study was gathered by using a trained moderator and structured interview process. The study noted that mobile technology in conjunction with goal setting have been recommended as areas for future research (Jay, Mateo, Squires, Kalet, & Sherman, 2016).

Mobile technology to monitor physical activity are continually evolving yet little is known about their effect on physical activity. Currently, more than 1000 exercise apps are available to consumers. Litman et al. (2015) utilized the International Physical Activity Questionnaire, Exercise Benefits/Barriers Scale, and exercise confidence survey to evaluate the effect of exercise apps on the physical activity of 726 male and female participants. The International Physical Activity Questionnaire evaluates the frequency and duration of physical activity over a one-week time frame. Participants were categorized into three different groups: non-exercise app users, previous exercise app users, and current app users. Approximately 73% (n=147) of current app users reported increased physical activity compared with non-users (n=464, 45.8%) and previous users (n=115, 46.1%), p=≤.001 (Litman et al., 2015).

A randomized weight loss trial of 96 participants over a six-month period evaluated the relationship of self-monitoring on physical activity and diet. The participants received education regarding weight loss and encouragement to increase physical activity by podcast. Participants that utilized the physical activity app were more likely to monitor their activity (2.6 ±0.5 days per week) and had a statistically significant decrease in body mass index (31.5 ± 0.5 kg/m^2, p=0.02) (Turner-McGrievy et al., 2013).

Additional research evaluated the effects of mobile app use in a group of 48 ambulatory care patients. The participants were divided into two groups: unblinded digital tracking group for phase one (n=32). In phase two, the unblinded digital tracking group was further divided into two groups: one unblinded group receiving text messages (n=16) and the other unblinded group without text messages (n=16). The remaining participants (n=16) were assigned to the blinded group for phase one and two. The blinded group could not see their physical activity data (Martin et al., 2015).

The unblinded-texts group accumulated an average 2534 more steps per day than the unblinded no text group which decreased its steps by an average of 200 per day (p =.001) (martin et al., 2015)

Practice Guidelines for Overweight, Obesity and Cardiovascular Risk

Expert panels and task forces from the VA, American Heart Association (AHA), and American College of Cardiology have conductive extensive literature review and grading of available evidence (Department of Veterans Affairs, 2014; Goff et al., 2013). The VA/DOD clinical practice guideline for screening and management of overweight and obese patients provides evidence based recommendations for weight loss, physical activity, and dietary guidance (Department of Veterans Affairs, 2014). The joint American College of Cardiology and AHA guideline offer up to date recommendations with practical implications for primary care providers (Goff et al., 2013). These guidelines have been included as they provide guidance on decreasing risk of heart disease and increasing physical activity for veterans and soldiers.

American Heart Association (AHA)Scientific Statement on Consumer Use of Mobile Health

In 2010, the AHA conducted an extensive literature review on the efficacy of mobile technology on weight management, physical activity, smoking cessation, diabetes, hypertension, and dyslipidemia. The initial literature review yielded 1490 studies which was narrowed to 41 with the use of advanced search filters specific to physical activity, mobile technology, and randomized controlled trials. Based on the literature review, the AHA modified its strategic plan to focus on four main areas: reduction in smoking, weight management, healthy eating, and encouragement of regular physical activity (Burke et al., 2015).

The studies reviewed by the AHA utilized texting or instant messaging, pedometers, email, and the Internet to increase physical activity. Of the 14 randomized controlled trials, nine reported statistically significant increases in physical activity when compared to the control group. Other studies noted increases in minutes per week exercised, increases in moderate and vigorous physical activity, and increases in step counts (Burke et al., 2015).

In 2016, the Federal Drug Administration (FDA) began working with the Federal Trade Commission (FTC) to initiate the regulation of mobile health technology (Charvat, 2016). The use of consumer mobile health technology is rapidly evolving. Over 81% of American households with an income over $75,000 and almost half of the American households with an income of less than $30,000 use a smart phone. Approximately one in five adults utilize a health app on their smart phone. The mobile technology is also available in the form of wearable physical activity tracking devices with global positioning service (GPS) making them more convenient and accessible to consumers (Burke et al., 2015).

The AHA notes the potential of the mobile health technology to impact the lives of patients and improve physical activity. These devices have the capability to gather extensive data on the physical and the behavioral components that drive physical activity while providing instant feedback. Despite the capacity of the devices, further studies need to be conducted to evaluate the efficacy of the mobile devices on the market and how best to implement this technology in patient care (Burke et al., 2015).

Conceptual framework

The DNP Project was guided by Pender's Health Promotion Model (Figure 1). Pender's Health Promotion Model is composed of three main components: individual characteristics, behavior specific cognitions and affect, and behavioral outcomes. The three main components are further subdivided to provide further detail on factors that influence and deter an individual's actions. Prior related behavior and personal factors guide how an individual perceives the benefits of an action, believes that they can perform the action, views barriers, and the effects of the activity. Interpersonal and situational influences along with behaviors influence the individual's commitment to follow through with the plan and exhibit healthy behaviors (McCullagh, 2013).

For the purpose of the DNP Project, a closed discussion group was created through the *My Fitness Pal* website. Since 2005, *My Fitness Pal*, a health and fitness application, has been freely available in web-based and mobile app formats (*My Fitness Pal*, 2015). *My Fitness Pal* provides immediate feedback to the user which can be viewed as a benefit and increases the perception of self-efficacy. The *My Fitness Pal* website and app also allow for discussion and

networking with other users; according to the concepts in Pender's model, these functionalities may increase personal commitment to weight loss plans and healthy behaviors (McCullagh, 2013).

Implementation

Project Setting and Criteria

The DNP Project was approved by Institutional Review Boards at both the University of Alabama in Huntsville and Womack Army Medical Center in Fayetteville, North Carolina (Appendix F and Appendix G). The DNP project was conducted at the Womack Army Medical Center in Fayetteville, North Carolina from March 2017, to July 2017. The inclusion criteria were: female, history of service or actively serving in the US military, ages 19-64 years of age, enrolled in the Womack Army Medical Center's healthcare system, self-identified use of mobile technology or physical activity monitor, and access to Internet/computer. The exclusion criteria were: male gender and/or a medical history that would prevent regular physical activity.

Instruments Used in the DNP Project

The DNP Project utilized an investigator-designed survey for the collection of data relating to participants' use of mobile and online technology and use of these platforms to track physical activity, amounts and classifications of physical activity per week.

Recruitment and Enrollment of Participants

The project was advertised through a script and use of flyers distributed by the Medical Support Assistants that staff the check-in desks and nursing staff (Appendix A, Appendix B).

Eligible participants were recruited from the primary care clinics of Womack Army Medical Center on Fort Bragg. A convenience sample of 30 participants, consisting of females ages 19-64, was recruited for participation in the DNP Project. The first participant enrolled on March 12, 2017, and the last participant enrolled on April 28, 2017. Data collection for the project was completed on July 22, 2017. After informed consent was obtained (Appendix C), the project participants were e-mailed an URL (Uniform Resource Locator) to the closed *My Fitness Pal* Physical Activity closed discussion group and a copy of their signed consent form. The URL directed participants to the *My Fitness Pal* website, provided a six-digit alphanumeric username, and an online tutorial on how to register and access the closed Physical Activity Mobile App group (Appendix D). The purpose of the closed Physical Activity discussion group was to utilize technology to capture data and provide the participants the convenience of using their own mobile devices or personal computers to post their daily physical activity. The closed discussion group was available through both through the *My Fitness Pal* website and mobile app. Participants had access to and used both the *My Fitness Pal* website and mobile app.

Data Privacy and Safeguards

The Principal Investigator (PI) assigned the six-digit alphanumeric username, tracked, and monitored the data which was stored behind a firewall on a government computer. The alphanumeric usernames were known exclusively to the PI. The enrollment data is scheduled for destruction by being purged from the local environment server of the federal computer system 12 months post completion of the project.

Evaluation

Data analysis for the DNP Project was conducted using SPSS (Version 22; IBM, 2013). An alpha level of significance of .05 was selected for non-parametric statistical analyses used in the project.

Descriptive Statistics

Demographics of the participants. The investigator designed pre-intervention survey did not inquire about the participant's branch of service, however, the active duty females were in uniform and other participants verbalized their prior service history. A total of 16 (53.3%, n=16) participants joined the closed *My Fitness Pal* discussion group; nine (0.3%, n=9) of the 16 participants completed the investigator-designed pre-intervention survey and posted for the group. Thirteen (81%, n=13) of the participants were active duty Army, six veterans were prior Army, one veteran had prior service in the U.S. Navy, and six veterans were retired from the Army (Table 1 and Table 2). Two participants did not complete the investigator-designed pre-intervention survey but posted to the group. One participant completed the investigator-designed pre-intervention survey but did not post to the group. Four (13%, n=4) participants did not complete the survey and did not post to the group. The remaining 14 (46.6%, n=14) participants of the 30 participants who were recruited initially did not join the *My Fitness Pal* closed discussion group.

Pre-intervention survey results. After registration and receipt of login credentials from the PI, participants accessed the six-question investigator designed pre-intervention survey from the *My Fitness Pal* closed discussion group welcome page (Appendix E). The survey was completed by 11 participants (36%, n=11); however, one participant completed the survey twice

and one participant did not post to the discussion group. Survey results from these entries were excluded from data analysis.

Results of the survey revealed that six (66.7%; n=6) participants utilized a mobile device to track their physical activity and three (33.3%, n=3) participants did not use a mobile device. The utilization of mobile devices to monitor physical activity was as follows: three (33.3%, n=3) used I-Phones, one (11.1%, n=1) used a Fitbit, and two (22.2%; n=2) used Android phones. Over 55% (n=5) of the participants selected walking, weight training, and exercise class as the most common physical activities. The least commonly selected physical activities were swimming and cycling at 1% (n=1).

Pre-intervention exercise patterns. Most of the participants (55.5%, n=5) exercised in 30-minute intervals, 33.3% (n=3) for 45-minute intervals, and 11.1% (n=1) percent for 60-minute intervals. Six (63.64%, n=6) participants exercised 4-5 days/week, three (27.27%, n=3) exercised 2-3 days/week, and one participant (11.1%, n=1) exercised 6-7 days/week. The mean pre-intervention days per week exercised was 4.44 days (SD 1.402). Of the 9 participants that completed the pre-participation survey and posted to the group, one (11.1%, n=1) classified themselves as very active, four (44.4%, n=4) as active, and four (44.4%, n=4) as sedentary (Table 3).

Participation in online discussion group. Though the intended duration of the DNP Project was 12 weeks, two of the participants posted after the time interval. The discrepancy regarding posting times may have been caused by signatures on the start and finish dates being based upon the date that the consent form was signed. The least amount of time a participant was enrolled in the program was four weeks and the longest was 17 weeks. The mean number of weeks for participation in the scholarly project was 10.78 weeks (Table 3).

The participants posted a total of 436 times and had a cumulative group total of 15,811 minutes exercised over the 12-week duration of the DNP Project. The lowest number of postings was nine and the highest number of postings was 130. The average number of postings per participant was 48.44. The four participants that identified themselves as sedentary in the pre-intervention survey posted 24-62 times. The four participants that identified as being active posted 9-74 times. The one participant that identified with being very active posted 130 times.

Participants reported 46-264 minutes of exercise weekly over the course of the DNP Project. The average number of minutes exercised per week was 132.22. Of the nine participants, two did not meet the Physical Activity guideline recommendation of 75 minutes of vigorous activity per week or 150 minutes of moderate activity per week. Of those two participants, one reported a high activity level, and the other reported a sedentary activity level. The single participant that did not meet the Physical Activity guideline, yet identified themselves as active, posted to the group nine times (Table 3).

Post-intervention survey. The post-intervention survey was completed by 7 participants. In reviewing participation metrics from the *My Fitness Pal* closed discussion group, the PI noted that the participants posted an average of 2-6 entries weekly for the duration of the project. Review of the posts placed over the 12-week DNP Project offered additional data regarding physical activity among the participants. Data from the closed *My Fitness Pal* closed discussion group demonstrated that participants exercised an average of 31-44 minutes (M=36.22, SD 6.3). The number of days exercised per week ranged from 2-6 (M=3.78, SD 1.302).

Physical Activity and Discussion Group Participation.

Because an objective of the DNP project was to determine the influence of participation in the discussion group upon physical activity levels, the project participants were divided into two subgroups (active duty and veterans) for additional analysis of the impact of participation in the closed discussion group upon levels of physical activity.

Physical activity and discussion group participation. Differences between the physical activity levels reported by active duty females and veterans were compared before and after participation in the closed discussion group intervention. A Wilcoxon signed-rank test showed that 12 weeks of participation by the veterans sub-group in the closed discussion group intervention did not elicit a statistically significant change in average minutes of time exercised per week (Z =-.405, p = .686), with a small effect size (r =.13). Median average minutes of exercise reported by veterans were 30.00 pre- intervention and 36.00 post-intervention. Numbers of days of exercise performed weekly by veterans before and after participation in the closed discussion group did not demonstrate a statistically significant change (Z =-.736, p =.461), with a small effect size (r =.23). Among veterans, individual average times exercised per week before and after participation in the closed discussion group did not demonstrate a statistically significant change (Z =-.944, p =.345), however the effect size was slightly greater (r =.3) (Table 7).

Differences in activity levels reported by active duty participants before and after participation in the closed discussion group were also compared. A Wilcoxon signed-rank test showed that the changes in pre- and post-intervention amounts of average time exercise seen in descriptive analysis lacked statistical significance (Z = -.730, p =.465, r =.26). Additionally, there were no statistically significant differences in numbers of days exercised weekly by the

active duty participants subgroup (Z =-1.473, p =.141) or average minutes of exercise per week (Z =-1.826, p =.068), with a large effect size (r =.65) (Table 6).

A one-way between-groups analysis of variance (ANOVA) was conducted to explore the impact of the closed group discussion upon perceptions of pre- and post-intervention levels of physical activity as reported by the participants, as assessed by the investigator-designed survey. During the data analysis, the PI noted three distinct number groupings among the minutes exercised per week per participant. Based on this analysis, the participants were divided into three groups according to their self-reported levels of weekly physical activity prior to participation in the closed discussion group intervention: Group 1) </=91 minutes of exercise per week; Group 2) 92-151 minutes of exercise per week; Group 3) 152-301 minutes of exercise per week. Prior to participation in the closed discussion group intervention, participants reported a difference, which was statistically significant, in levels of physical activity per week: F (2, 6) = 7.082; p =.026 (Table 4). The effect size, calculated using eta squared, was .70. Following participation in the closed discussion group intervention, reported levels of physical activity by the project participants were again compared. No statistically significant differences between the participants were demonstrated: F (2, 6) = 1.326; p =.327), and the effect size, calculated using eta squared, was small (.20) (Table 5).

Application to Practice

The DNP Project did not demonstrate statistically significant changes in subgroups' self-reports of minutes and days exercised weekly. The veterans subgroup did not increase their weekly exercise, which mirrors reports in the literature regarding the physical inactivity

associated with increasing years of veteran status (Jay, et al, 2016). At the beginning of the project the active service component exercised an average 30-45 minutes four to five days a week and veteran group exercised 30-60 minutes three to five days per week. Participants in the active service subgroup, which demonstrated higher levels of weekly physical activity as compared to veterans, did not increase days or minutes exercised weekly, but did maintain these higher levels of physical activity. Interestingly, additional analysis of subgroups sorted using categories of minutes exercised weekly as reported by participants demonstrated a statistically significant difference with a large effect size at the commencement of the DNP project, but these same differences were not evident at the DNP Project's conclusion, suggesting that that the participants may have changed their levels of activity.

Despite the high rate of attrition and lack of statistical significance, which can be expected in projects with small sample sizes, results of the DNP Project suggest aspects of clinical significance that may be important to the population and setting in which it was conducted. Participants in the DNP Project consisted of both females in active duty service and veterans, groups identified as vulnerable to increasing weight and reduced activity over time. Descriptive statistics suggest that participation in the intervention may have assisted participants who reported lower levels of physical activity to become more active, while encouraging those who reported higher levels of physical activity per week to continue their efforts. Four (0.4%, n=4) of the nine participants were noted to have an increase in average time exercised ranging from three to 13 minutes. Four (0.4%, n=4) of the participants had no change in the pre-and post-intervention days per week exercised. At least seven of the nine participants (77%, n=9) met the physical activity guidelines. Three of those participants were veterans and four were active duty. The two participants that did not meet the guidelines were retired. Five of the nine

(55%, n=5) participants stayed in the project for at least 12 weeks, suggesting that the closed discussion group to increase physical activity is sustainable. At least seven of the nine participants (77%, n=9) met guidelines for suggested amounts of physical activity. Three of those participants were veterans and four were active duty. The two participants that did not meet the guidelines were retired.

The pre-intervention investigator designed survey did not ask the number of years separated from service. However, the veterans had some of the higher number of total program minutes exercised. These project findings contrast with findings in the literature reporting decreasing physical activity in veterans after service (Washington et al., 2016). Results of the DNP Project further contrast with the reports that less than 25% of Americans meet the physical activity guidelines (President's Council on Fitness, Sports & Nutrition, n.d.). Higher levels of physical activity could be due to the participant's previous level of experience with exercise and mobile technology, strong support system, or lack of support, barriers, and perceived self-efficacy (McCullagh, 2013).

There were participants who reported technical difficulties with accessing the *My Fitness Pal* closed discussion group and the investigator designed survey. Other participants reported that they forgot about their agreement to participate in the DNP Project post-enrollment. These factors may have contributed to attrition and the resulting small size of the final sample used in data analysis. The use of technology to increase physical activity is relatively new and continues to evolve but demonstrates the potential to increase amounts of physical activity (Burke et al., 2015). Studies that utilized text message and evidence-based protocol noted a statistically significant increase in physical activity while using mobile technology (Martin et al., 2015).

Further research with the use of an evidence based protocol and email or text message may provide further insight as to which factors promote or inhibit physical activity.

Barriers

The primary barrier to implementation of the project was the difficulty in recruiting participants, as the PI was not an employee at the Womack Army Medical Center. Though a few participants were recruited with the posters and flyers, most of the participants were recruited through interaction with the PI. Though the goal for enrollment was 40 participants, the total number who initially enrolled in the DNP project was 30.

Use of the closed discussion group may have been a motivating factor for some participants, though others may have viewed it as an extra step. Those participants that used smartphones or wearable devices could sync their data directly to their devices. However, there are over 1000 devices available on the market and use of the closed discussion group was the most practical method for the DNP Project (Litman et al., 2015). In the DNP Project, the participants manually entered the data into the closed discussion group and this may have affected the accuracy of the data. There were participants who reported technical difficulties with accessing the *My Fitness Pal* closed discussion group and the investigator designed survey. Other participants reported that they forgot about their agreement to participate in the DNP Project post-enrollment. These factors may have contributed to attrition and the resulting small size of the final sample used in data analysis. The use of technology to increase physical activity is relatively new and continues to evolve but demonstrates the potential to increase amounts of physical activity (Burke et al., 2015). Studies that utilized text message and evidence-based protocol noted a statistically significant increase in physical activity while using mobile

technology (Martin et al., 2015). Further research with the use of an evidence based protocol and email or text message may provide further insight as to which factors promote or inhibit physical activity.

Costs

The DNP Project was conducted at a cost of approximately $200, primarily including printing of posters and flyers for advertisement. The *My Fitness Pal* application is a free, web-based product with a mobile application that can be downloaded at no charge to participants.

Sustainability

Veterans have access to many resources through Tricare Online, MyHealtheVet, VA MOVE! program, and the on-post Army Wellness Centers. The VA is beginning a transition to a Whole Health Initiative. The Whole Health Initiative encompasses a wide variety of Complementary and Integrative Health Services such as adaptive exercise and sports, dancing, yoga, music therapy, dietary therapy, acupuncture, biofeedback, chiropractor, stress management, and mindfulness. The Whole Health Initiative is slowly being integrated into the VA medical system. VA Facilities such as the VA San Diego Healthcare System have already begun to integrate the Whole Health Initiative and provide services to veterans (VASDHS Complementary and Integrative Health (CIH) Services pamphlet, 2016.).

Currently, participants in the VA MOVE! program have access to the MOVE! app which provides a method to track diet and physical activity. However, many veterans have physical or behavioral health conditions that may limit their physical activity.

Data from the DNP Project, studies evaluating mobile technology and physical activity, resources from the VA MOVE! program and the adaptive exercise and sport program can be

utilized to develop an evidence based protocol which could then be incorporated into the VA MOVE! program and clinical setting. Such a protocol could guide patients with physical and behavioral health limitations on physical activities that they can perform, empowering females in active serve and veterans to shift their focus away from what they cannot perform to their unique capabilities in maintaining suggested amounts of physical activity. The protocol can be developed through a joint venture encompassing a panel of multidisciplinary experts. It is anticipated that the physical activity evidence based protocol will assist in decreasing the utilization rate, healthcare costs, and morbidity, and mortality associated with physical inactivity for those who have served, and continue to offer service, in protecting the United States and its citizens.

References

Bauman, A. E., Reis, R. S., Sallis, J. F., Wells, J. C., Loos, R. J., & Martin, B. W. (2012). Correlates of physical activity: Why are some people physically active and others not? *Lancet, 380,* 258-271. doi: 10.1016/S0140-6736(12)60735-1

Burke, L. E., Ma, J., Azar, K. M. J, Bennett, G. G., Peterson, E. D., Zheng, Y., Riley, W., Stephens, J., Shah, S.H., Suffoletto, B., Turan, T. N., Spring, B., Steinberger, J., Quinn, C.C. (2015). Current science on consumer use of mobile health for cardiovascular disease prevention: A scientific statement from the American Heart Association. Circulation, 2015; 1-57. doi:10.1161/CIR0000000000000232

Casey, M., Hayes, P. S., Glynn, F., Laighin, G., Heaney, D., & Murphy, A. W. (2014). Patients' experiences of using a smartphone application to increase physical activity: The SMART MOVE qualitative study in primary care. *British Journal of General Practice, 2014,* e500-e508.

Center for Disease Control and Prevention. (2016, June 16). Center for Disease Control and Prevention. Retrieved on October 5, 2016 from http://www.cdc.gov

Charvat, M. (2016, May 19). The growing pains of mobile health. *Tech Crunch Network.* Retrieved from https://techcrunch.com/2016/05/19/the-growing-pains-of-mobile-health/

Davis, M. B., Maddox, T. M., Langner, P., Plomondon, M. E., Rumsfeld, J. S., & Duvernoy, C. S. (2015). Characteristics and outcomes of women veterans undergoing cardiac catherization in the Veteran Affairs Healthcare System. *Circulation Cardiovascular Quality and Outcomes, 2015,* 1-9. doi:10.1161/CIRCOUTCOMES.114.001613.

Department of the Army. (2013). *The Army Body Composition Program.* (AR 600-9). Washington, DC. Retrieved from https://www.apd.army.mil

Department of Veterans Affairs. (2014). VA/DOD Clinical Practice Guideline for Screening and Management of Overweight and Obesity (Version 2.0-2014). Retrieved from http://www.healthquality.va.gov/guidelines/CD/obesity/ on June 18,2016.

Goff, D. C., Lloyd-Jones, D. M., Bennett, G., Coady, S., D'Agostino, R. B., Gibbons, R, Greenland, P., Lackland, D. T., Levy, D., O'Donnell, C. J., Robinson, J. G., Schwartz, J. S., Shero, S. T., Smith, S. C., Sorlie, P., Stone, N. J. & Wilson, P. W. (2013). 2013 ACC/AHA Guideline of the assessment of cardiovascular risk: A report of American College of Cardiology/American Heart Association Task Force of Practice Guidelines. *Journal of the American College of Cardiology, 63(25),* 2935-59.

IBM Corp. Released 2013. *IBM SPSS Statistics for Windows, Version 22.0.* Armonk, NY: IBM Corp.

Jay, M., Mateo, K. F., Squires, A. P., Kalet, A. L., & Sherman, S. E. (2016). Military service and other socioecological factors influencing weight and health behavior change in overweight and obese veterans: A qualitative study to inform intervention development within primary care at the United States Veterans Health Administration. *BMC Obesity, 3,* 1-14. doi:10.1186/s40608-016-0087-3

Kooiman, T. J., Dontje, M. L., Sprenger, S. R., Krijnen. W. P., Van der Schans, C. P., & De Groot, M. (2015). Reliability and validity of ten consumer activity trackers. *BMC Sports Science, Medicine & Rehabilitation, 7,* 1-11. doi:10.1186/s13102-015-0018-5

Kovelis, D., Zabatiero, J., Couto-Furlanetto, K., Cruz-Mahtani, L., Provençal, M., & Pitta, F. (2012). Short-term effects of using pedometers to increase daily physical activity in

smokers: A randomized trial. *Respiratory Care, 57,* 1089-1097. doi:10.4187/respcare.01458

Lehavot, K., Herter, K. D., Nelson, K. M., Jakupcak, M., & Simpson, T. L. (2012). Health indicators for military, veteran, and civilian women. *American Journal of Preventive Medicine, 42,* 473-480. doi:10.1016/j.amepre.2012.01.006

Litman, L., Rosen, Z., Spierer, D., Weinberger-Litman, S., Goldschein, A. & Robinson, J. (2015). Mobile exercise apps and increased leisure time exercise activity: A moderated mediation analysis of the role of self-efficacy and barriers. *Journal of Medical Internet Research, 17,* 1-21. doi:10.2196/jmir.4142

Martin, S. S., Feldman, D. I., Blumenthal, R. S., Jones, S. R., Post, W. S., McKibben, R. A., Michos, E. D., Ndumele, C. E., Ratchford, E. V., Coresh, J. & Blaha, M. J. (2015). mActive: A randomized clinical trial of an automated mHealth intervention for physical activity promotion. *Journal of the American Heart Association, 4,* 1-9. doi:10.1161/JAHA.115.002239

McCullagh, M.C. (2013). Health Promotion. In S. J. Peterson & T. S. Bedew (Eds.*). Middle Range Theories. Application to Nursing Research* (pp. 224-233). Philadelphia, PA: Lippincott Williams & Wilkins.

Noah, J. A., Spierer, D. K., Gu, J., & Bronner, S. (2013). Comparison of steps and energy expenditure assessment in adults of Fitbit Tracker and Ultra to the actical and indirect calorimetry. Journal of Medical Engineering & Technology, 37, 456-462. Doi:10.3109/03091902.2013.831135

President's Council on Fitness, Sports & Nutrition. (n.d.). Facts & Statistics. Retrieved on July 10, 2016 from http://www.fitness.gov/resources-center/facts-and-statistics/

Rose, D. E., Farmer, M. M., Yano, E. M., & Washington, D. L. (2013). Racial/ethnic differences in cardiovascular risk factors among women veteran. *Journal of General Internal Medicine, 28(Suppl 2),* S524-528. doi: 10.1007/s11606-012-2309-9

Sanders, J. P., Loveday, A., Pearson, N., Edwardson, C., Yates, T., Biddle, S. J., & Esliger, D. W. (2016). Devices for self-monitoring sedentary time or physical activity: A scoping review. *Journal of Medical Internet Research,18,* 1-16. doi:10.2196/jmir.5373

Takacs, J., Pollock, C. L., Guenther, J. R., Bahar, M., Napier, C., & Hunt, M. A. (2013). Validation of the Fitbit One activity monitor device during treadmill walking. *Journal of Medicine in Sport, 17,496*-500. doi:10.1016/j.jsams.2013.10.241

Tanofsky-Kraff, M., Sbrocco, T., Theim, K. R., Cohen, L. A., Mackey, E. R., Stice, E., Henderson, J. L., McCreight, S. J., Bryant, E. J., & Stephens, M. B. (2013). Obesity and the US Military family. *Obesity, 21,* 2205-2220. Doi:10.1002/oby.20566

Thomas, G. N., Macfarlane, D. J., Guo, B., Cheung, B. M., McGhee, S. M., Chou, K. L., Deeks, J. J., Lam, T. H., & Tomlinson, B. (2012). Health promotion in older Chinese: A 12-month cluster randomized controlled trial of pedometer and "peer support". *Medicine & Science in Sports & Exercise, 44,1157*-1166. doi: 10.1249/MSS.0b013e318244314a

Tilghman, A. (2016, September 11). The U.S. military has a huge problem with obesity and it's only getting worse. *Military Times.* Retrieved from https://www.militarytimes.com/news/your-military/2016/09/11

Turner-McGrievy, G. M., Beets, M. W., Moore, J. B., Kaczynski, A. T., Barr-Anderson, D. J., & Tate, D. F. (2013). Comparison of traditional versus mobile app self-monitoring of physical activity and dietary intake among overweight adults participating in an mhealth

weight loss program. *Journal of the American Medical Informatics Association,20,* 513-518. doi:10.1136/amiajnl-2012-001510

U.S. Department of Health and Human Services. (2008). *2008 Physical Activity Guidelines for Americans.* Washington, DC. Retrieved from https://health.gov/paguidelines/pdf/paguide.pdf

Veteran Health Administration. (2015). *Analysis of VA healthcare utilization among Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn(OND) Veterans.* Washington, DC. Retrieved on June 12, 2016 from http://www.publichealth.va.gov/docs/epidemiology/healthcare-utilization-report-fy2015-qtr1.pdf

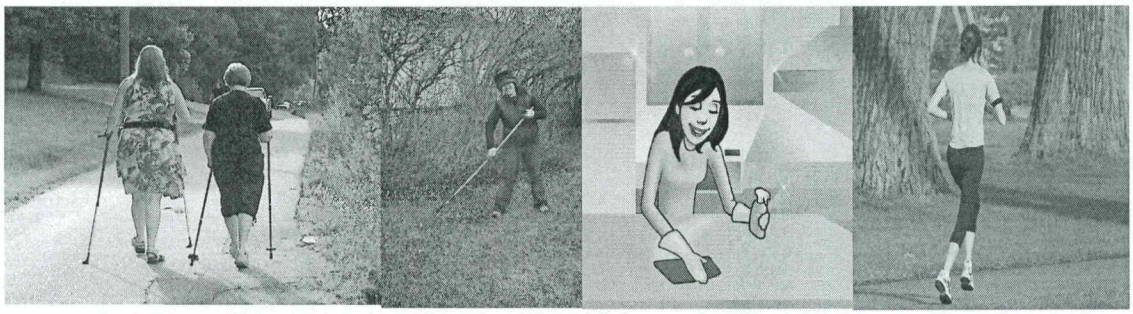
Veterans Administration San Diego Healthcare System(VASDHS). (2016). VASDHS Complementary and Integrative Health (CIH) Services. San Diego, CA.

Washington, D. L., Gray, K., Hoerster, K. D., Katon, J. G., Cochrane, B. B., LaMonte, M. J., Weitlauf, J. C., Groessl, E., Bastian, L. Vitolins, M. Z., & Tinker, L (2015). Trajectories in physical activity and sedentary time among women veterans in the Women's Health Initiative. *The Gerontologist, 56,* S27-S39. doi: 10.1039/geront/gnv676

Appendix A

Physical activity is one of the most important defenses against heart disease. The U. S. Department of Health and Human services recommends 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity physical activity per week.

How active are you? Are you between the ages of 19-64? Would you be interested in participating in a project that evaluates the effects of mobile technology on physical activity? If interested please e-mail the principal investigator, Joan Riordan at jkr0010@uah.edu



The data gained from this project will be used to help female veterans increase their physical activity. Thank you for your interest. – Joan K. Riordan, LTC(R), FNP-BC, MSN, RN

Appendix B

Script educating participants on scholarly project

Ms. Joan K. Riordan, Family Nurse Practitioner, LTC (Retired) is a Doctoral of Nursing Practice Student at the University of Alabama in Huntsville. She is conducting her scholarly project on the use of mobile technology to increase physical activity in female veterans. Your participation in the project is voluntary and no incentive or compensation will be involved.

The project will take place over the course of 12 weeks. If you agree to the participate in the project, you will be asked to sign an informed consent form. Once the consent form is signed, you will be e-mailed a link, username, and instructions on how to enroll in a closed *My Fitness Pal* group. In this closed group, you will be asked to document the type of physical activity and the amount of time spent performing the activity daily. The goal of this project is to look at the possible impact of mobile technology on physical activity.

If you are interested, please contact the principal investigator, Ms. Joan Riordan at the e-mail listed on the flyer.

Thank you for your time.

Appendix C

Use of Mobile Technology to Increase Physical activity in Female Veterans and Soldiers

You are invited to participate in a scholarly project about Use of Mobile Technology to increase physical activity in female veterans and soldiers. This scholarly project is designed to help us to better understand the effects of mobile technology on physical activity.

The primary investigator is Joan K. Riordan from Fayetteville, North Carolina (jkr0010@uah.edu).

PROCEDURE TO BE FOLLOWED IN THE SCHOLARLY PROJECT: Participation in this project is completely voluntary. Once written consent is given; you will be e-mailed a link with a username and instructions on how to enroll in the closed *My Fitness Pal* group. In this closed group, you will be asked to post daily on the type of physical activity that you participate in and the amount of time spent performing that activity. The closed discussion group will be available for the length of the project which is 12 weeks.

DISCOMFORTS AND RISKS FROM PARTICIPATING IN THIS SCHOLARLY PROJECT: There is no anticipation of physical risk to participants.

EXPECTED BENEFITS: Results from this project will be used to develop a protocol regarding the use of mobile technology to increase the physical activity of female veterans

INCENTIVES AND COMPENSATION FOR PARTICIPATION: Participants will not receive any incentives and will not be compensated for participation in the scholarly project.

Appendix C (continued)

CONFIDENTIALITY OF RESULTS: The username provided to you will be used to record your data, and this information will be made available only to the principal investigator for this scholarly project, thereby ensuring strict confidentiality. This consent form will be destroyed after 3 years. The data from the scholarly project will only be released to those individuals who are directly involved in the research and will not contain any personal identifiable information.

FREEDOM TO WITHDRAW: You are free to withdraw from the scholarly project at any time. You will not be penalized because of withdrawal in any form. Investigators reserve the right to remove any participant from the session without regard to the participant's consent.

CONTACT INFORMATION: If you have any questions, you may ask them now or contact the principal investigator, Ms. Joan K. Riordan at jkr0010@uah.edu. If you have questions about your rights as a research participant, or concerns or complaints about the research, you may contact the Office of the IRB (IRB) at 256.824.6101 or email the IRB chair Dr. William Wilkerson at irb.@uah.edu.

If you agree to participate in our research, please sign and date below.

This scholarly project was approved by the Institutional Review Board at UAH and will expire in one year from <date of IRB approval>.

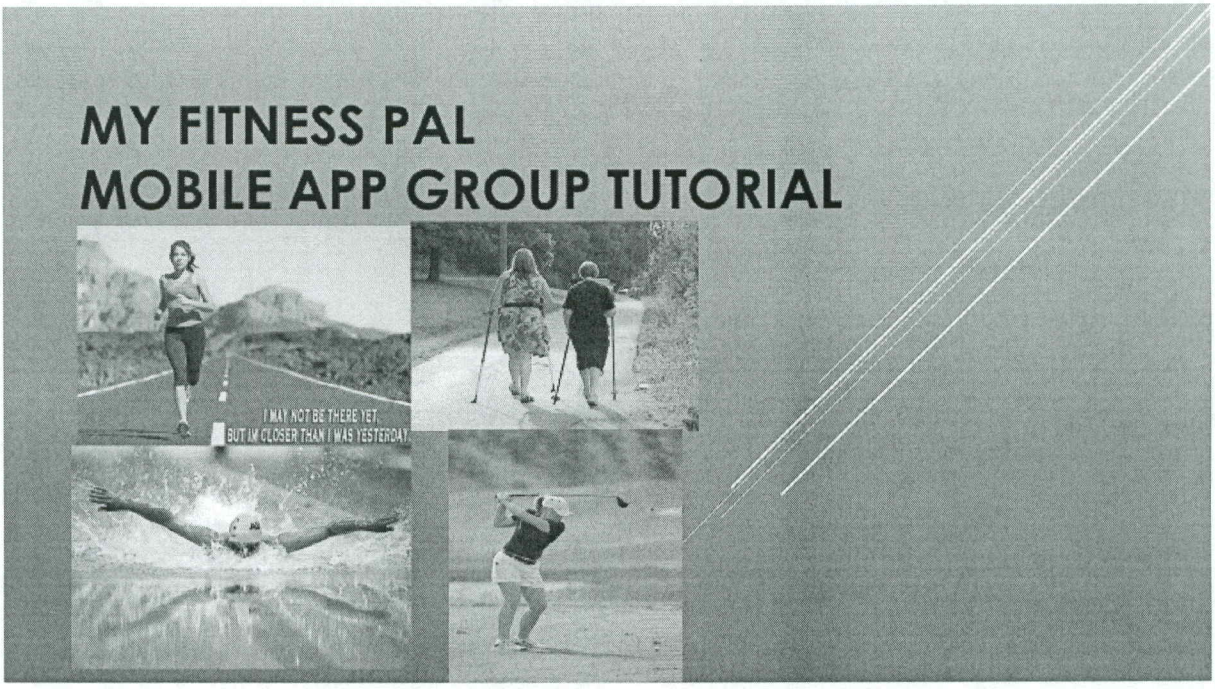
_____ _____

Name (Please Print) Signature Date

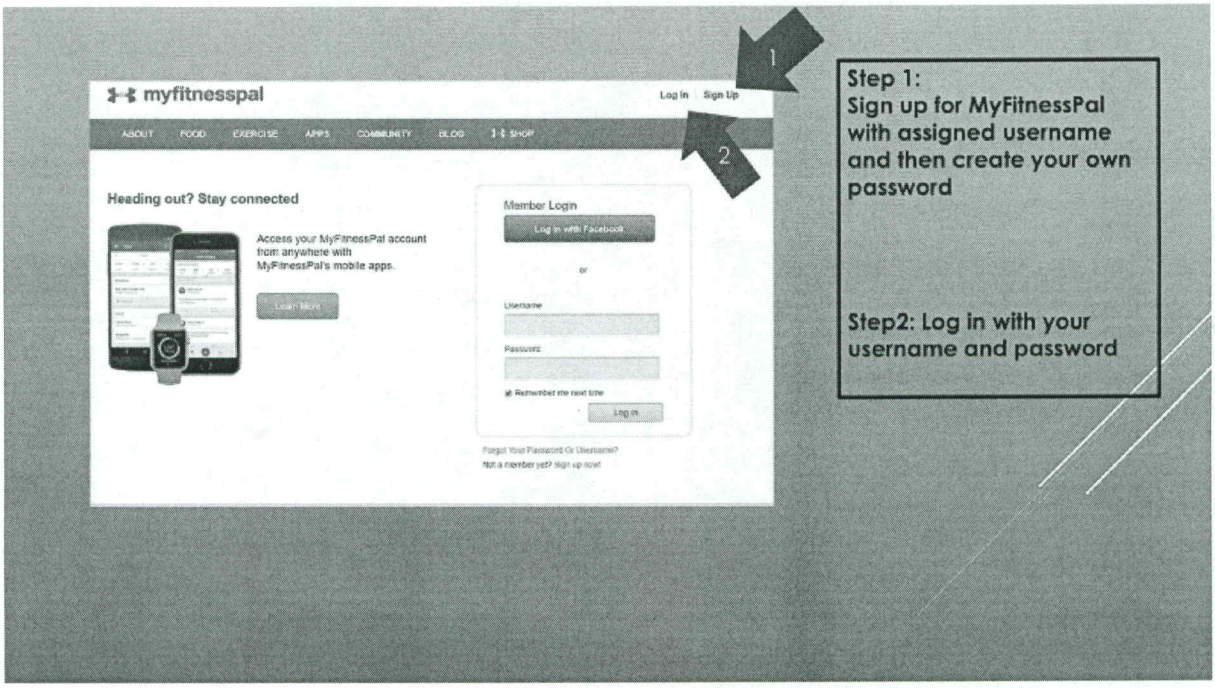
_____ _____

E-mail address Parent/Guardian Signature (if younger than 19)

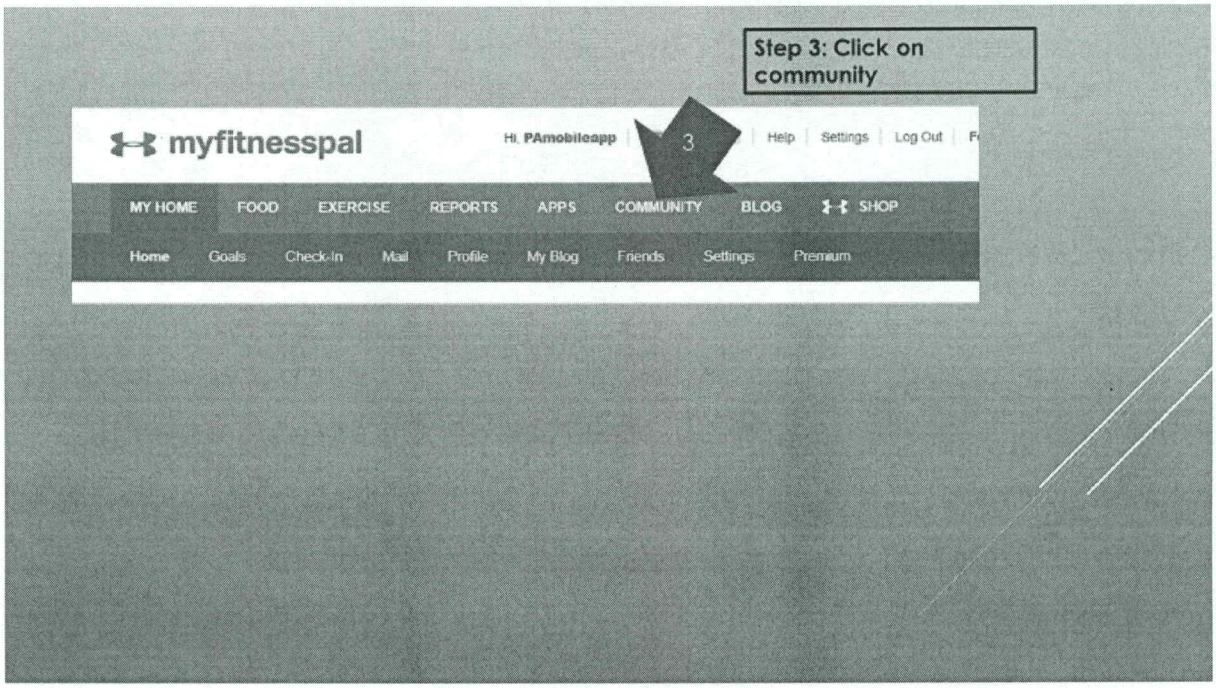
Appendix D


MY FITNESS PAL
MOBILE APP GROUP TUTORIAL
I MAY NOT BE THERE YET,
BUT IM CLOSER THAN I WAS YESTERDAY.

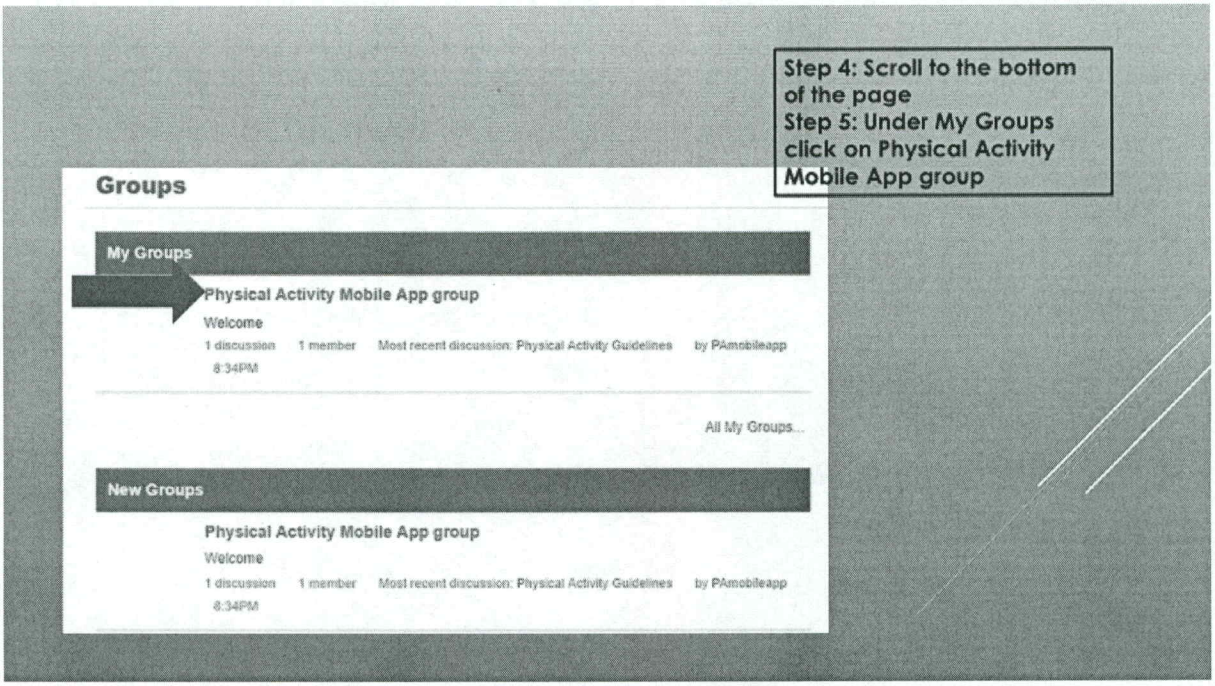
Appendix D (continued)



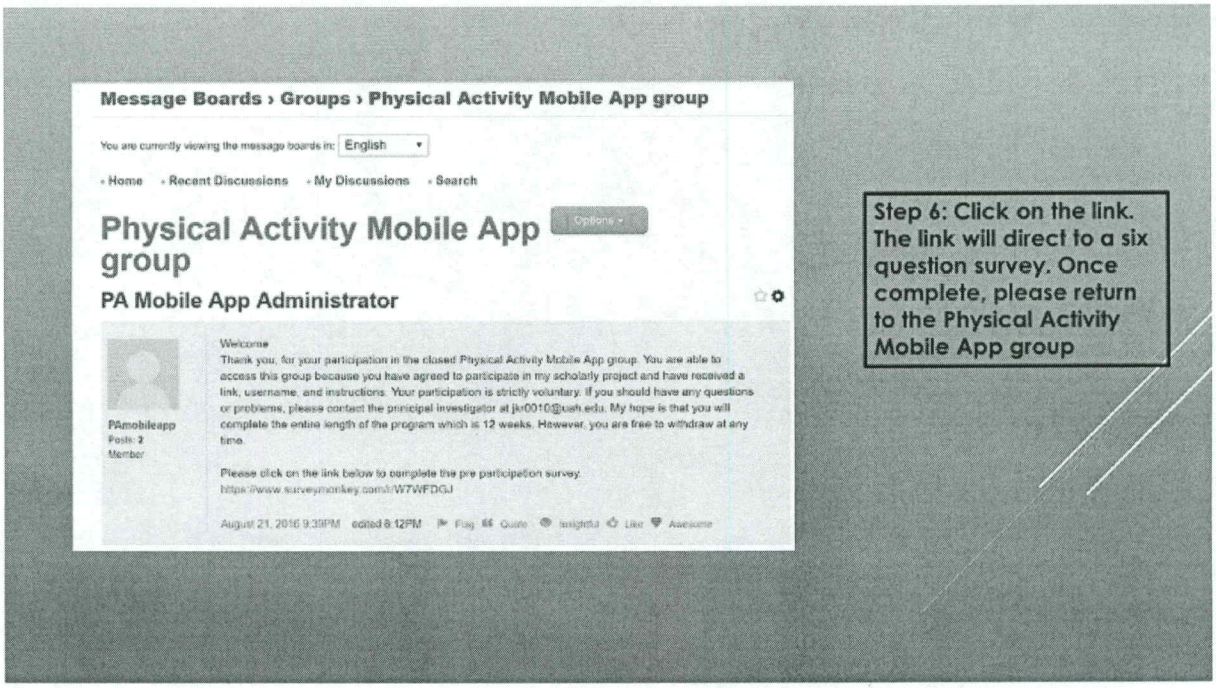
Appendix D (continued)



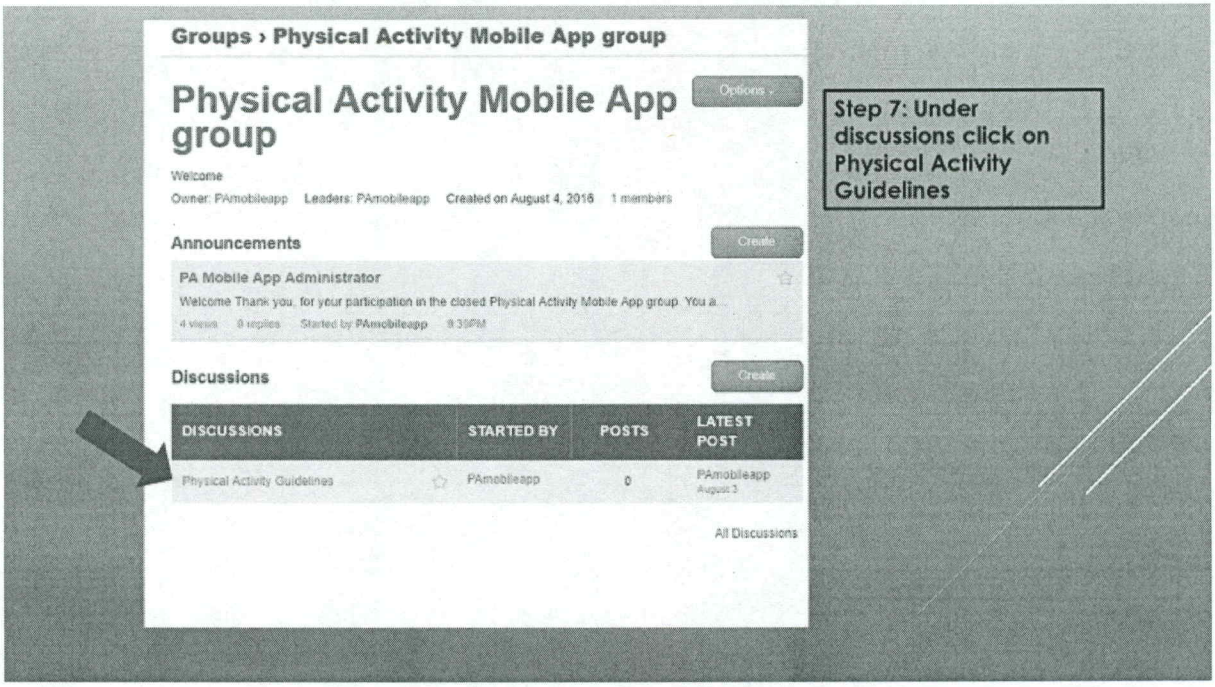
Appendix D (continued)



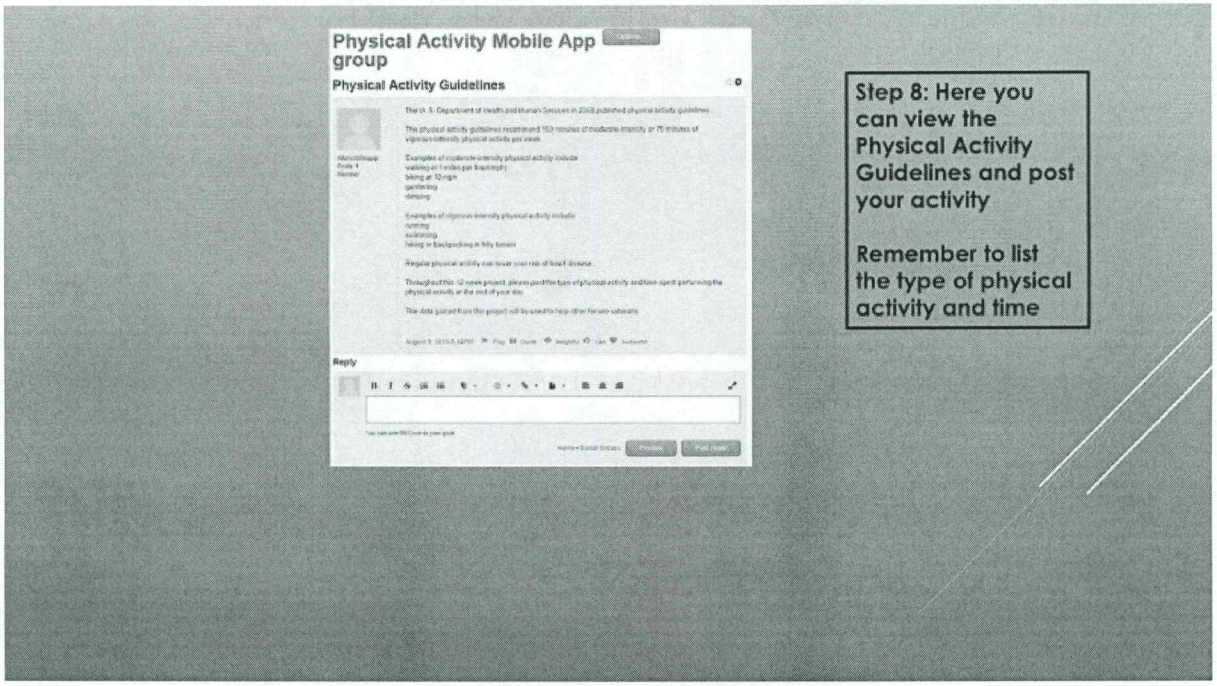
Appendix D (continued)



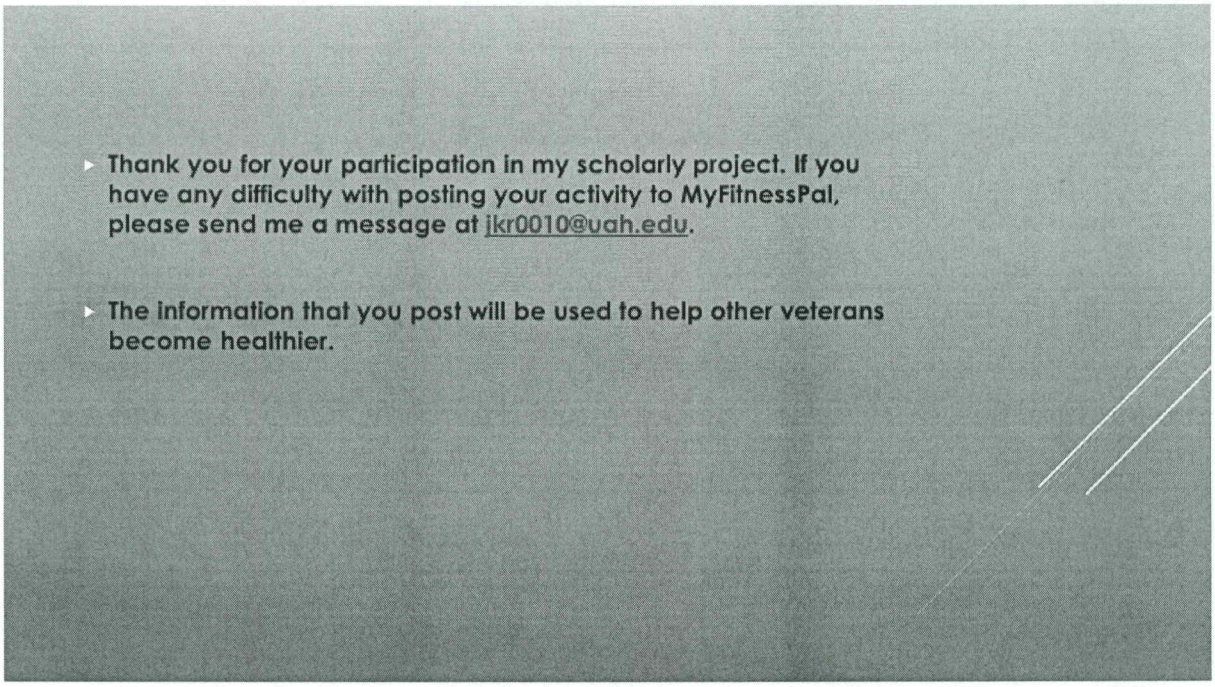
Appendix D (continued)



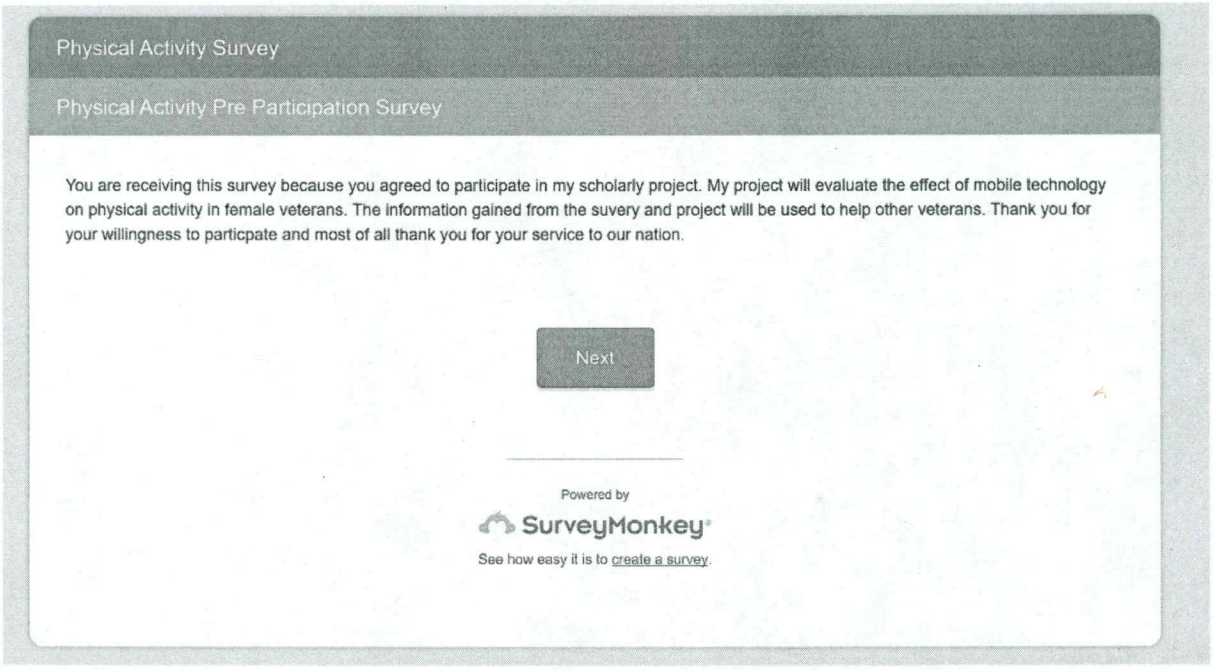
Appendix D (continued)



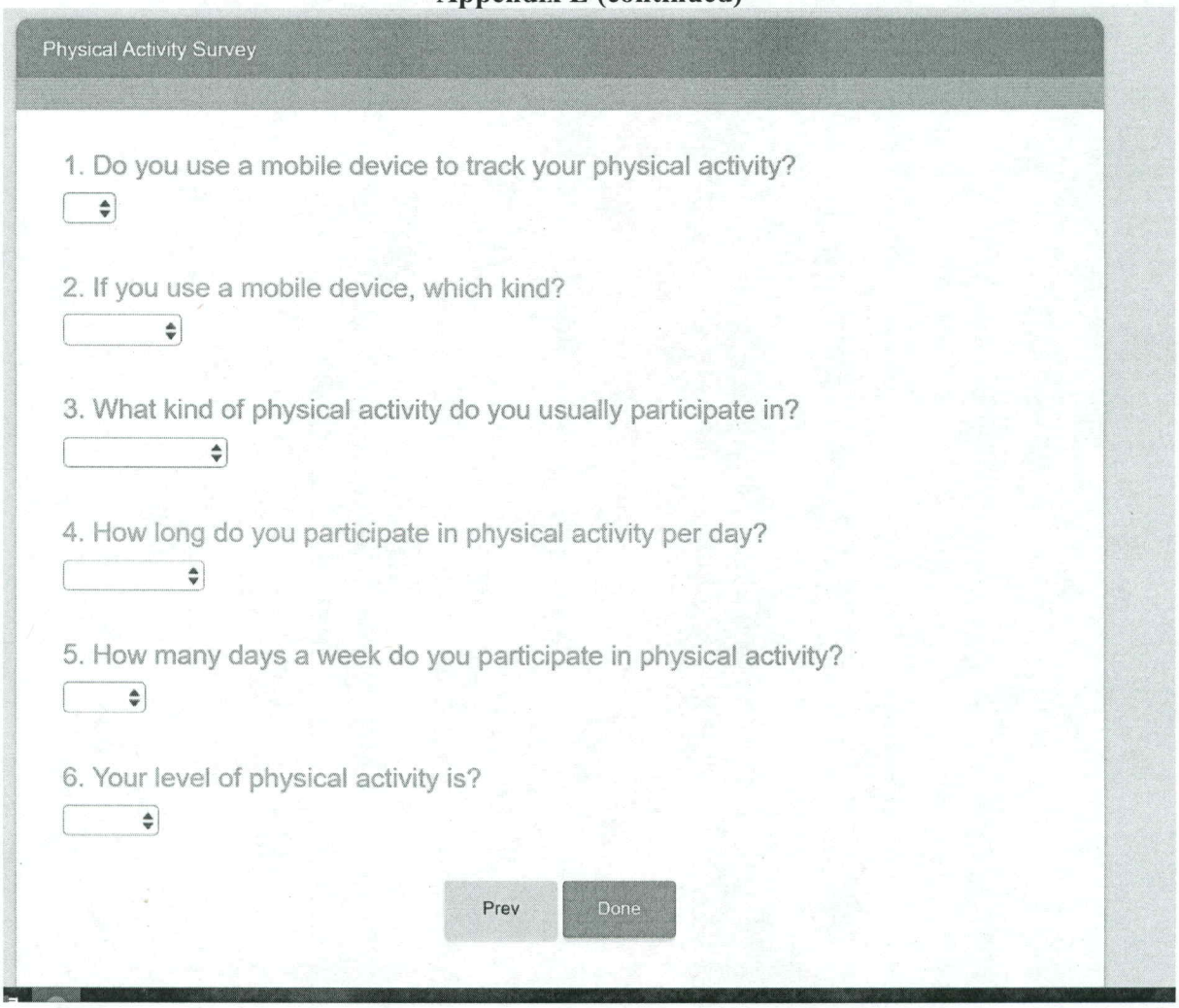
Appendix D (continued)



Appendix E


Physical Activity Survey
Physical Activity Pre Participation Survey
You are receiving this survey because you agreed to participate in my scholarly project. My project will evaluate the effect of mobile technology on physical activity in female veterans. The information gained from the suvery and project will be used to help other veterans. Thank you for your willingness to particpate and most of all thank you for your service to our nation.
Next
Powered by
SurveyMonkey
See how easy it is to create a survey.

Appendix E (continued)



Appendix F: UAH Institutional Review Board Approval Letter

THE UNIVERSITY OF
ALABAMA IN HUNTSVILLE¶
→ ¶

¶
¶
November 21st 2016¶
¶
Joan K. Riordan¶
MSN, FNP-BC¶
University of Alabama in Huntsville ¶
Doctor of Nursing Practice Student¶
¶
Dear Ms. Riordan,¶
¶

The UAH Institutional Review Board of Human Subjects Committee has reviewed your proposal, *Use of mobile technology to increase physical activity in female veterans and soldiers,* and found it meets the necessary criteria for approval. Your proposal seems to be in compliance with this institutions Federal Wide Assurance (FWA) 00019998 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46).¶

Please note that this approval is good for one year from the date on this letter. If data collection continues past this period, you are responsible for processing a renewal application a minimum of 60 days prior to the expiration date. ¶

No changes are to be made to the approved protocol without prior review and approval from the UAH IRB. All changes (e.g. a change in procedure, number of subjects, personnel, study locations, new recruitment materials, study instruments, etc) must be prospectively reviewed and approved by the IRB before they are implemented. You should report any unanticipated problems involving risks to the participants or others to the IRB Chair. ¶

If you have any questions regarding the IRB's decision, please contact me.¶

¶
¶
Sincerely, ¶
¶

¶
¶
William Wilkerson¶
IRB Chair¶
Dean, Honors College¶
¶

Appendix G Womack Institutional Review Board approval letter

DEPARTMENT OF THE ARMY
Womack Army Medical Center
Fort Bragg, North Carolina 28310

REPLY TO ATTENTION OF

MCXC-DME-RES

2 September 2016

MEMORANDUM FOR LTC Ida Montgomery, AN, Assistant Professor, Uniformed Services University of the Health Sciences and Director, Doctor of Nursing Practice Phase II Program, Womack Army Medical Center (WAMC), 2817 Reilly Road, Fort Bragg, NC 28310-7301

SUBJECT: Review of Student Project, "Use of Mobile Technology to Increase Physical Activity in Female Veterans Ages 18-64," WAMC Protocol Number 160806.

1. I have reviewed the subject project and found that it does not meet the definition of research as defined by 32 CFR 219.102(d).

2. This project involves evaluating the effect of mobile technology on increasing physical activity in female veterans versus traditional counseling at WAMC and making evidence-based recommendations to WAMC key stakeholders. Although the evaluation is systematic it is not designed or intended to contribute to generalizable knowledge.

3. This project will be conducted by Joan K. Riordan, FNP-BC, MSN, RN for partial fulfillment of the requirements of the DNP degree program at the University of Alabama. LTC Montgomery will provide oversight of this activity.

4. Approval by the WAMC Institutional Review Board is not required. You are free to add and remove staff as needed.

5. If you have not already done so, you will need to obtain appropriate permission from any impacted departments before implementing this project.

6. Point of contact for this action is the undersigned at (910) 907-6307.

DUCHESNEAU.CARYN.L.1014129800

CARYN L. DUCHESNEAU, CIP
Human Protections Administrator
Womack Army Medical Center

Figure 1

Pender's Health Promotion Model

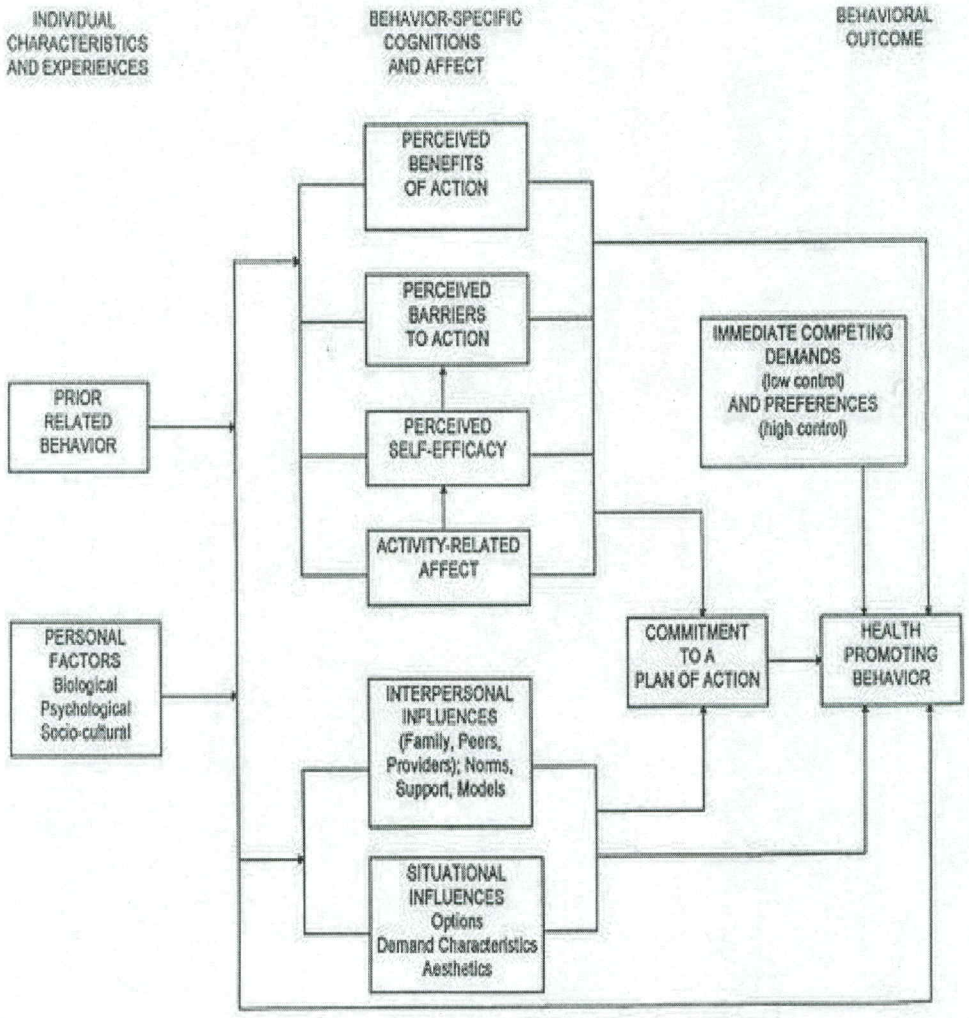


Table 1
Branch of Service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Army	8	88.9	88.9	88.9
	Navy	1	11.1	11.1	100.0
	Total	9	100.0	100.0	

Table 2
Status of Service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Active Duty	4	44.4	44.4	44.4
	Retired	4	44.4	44.4	88.9
	Separated	1	11.1	11.1	100.0
	Total	9	100.0	100.0	

Table 3

Project measurements

	Number of postings	Weeks in program	Program total minutes exercised	Pre-intervention average time exercised	Post-intervention average time exercised	Pre-intervention days per week exercised	Post-intervention days per week exercised	Pre-intervention average time exercised per week	Post-intervention average time exercised per week
Valid	9	9	9	9	9	9	9	9	9
Missing	0	0	0	0	0	0	0	0	0
Mean	48.44	10.78	1756.78	38.33	36.22	4.44	3.78	175.89	132.22
Median	42.00	12.00	945.00	30.00	36.00	5.00	3.00	150.00	114.00
Mode	9	4	185	30	36	5	3	150	46
Std. deviation	38.360	4.919	1505.816	10.897	6.300	1.402	1.302	79.031	72.51
Range	121	13	4424	30	19	5	4	210	218
Minimum	9	4	185	30	25	3	2	90	46
Maximum	130	17	4609	60	44	7	6	300	264

Table 4
Pre-intervention average time exercised per week

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	35098.889	2	17549.444	7.082	.026
Within Groups	14868.000	6	2478.000		
Total	49966.889	8			

Table 5
Post-intervention average time exercised per week

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13085.889	2	6542.944	1.355	.327
Within Groups	28975.667	6	4829.278		
Total	42061.556	8			

Table 6

Comparison of amounts of time exercised weekly in Active Service Subgroup.

	Post-intervention time exercised-pre-intervention time exercised	Post days per week exercised-pre days per week exercised	post average time exercised per week-pre average time exercised per week
Z	-0.730	-1.473	-1.826
Asymp. Sig (2-tailed)	0.465	0.141	0.068

Table 7

Comparison of amounts of time exercised weekly in Veterans Subgroup.

	Post-intervention time exercised-pre-intervention time exercised	Post days per week exercised-pre days per week exercised	post average time exercised per week-pre average time exercised per week
Z	-0.405	-0.736	-0.944
Asymp. Sig (2-tailed)	0.686	0.461	0.345