EXAMINATION AND PROMOTION OF HEALTH BEHAVIORS AMONG CLERGY
IN A FAITH-BASED SETTING

A Dissertation in
Kinesiology

by

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Physical activity (PA) is associated with numerous health benefits and faith-based organizations (FBOs) are positioned to promote PA to a large segment of the population. Clergy are the spiritual and administrative leaders of FBOs and their health and behaviors may influence the health environment of FBOs.

This dissertation identified factors associated with self-efficacy for providing PA counseling and PA counseling behavior among clergy. After controlling for other significant variables, self-efficacy for PA counseling contributed significantly to the explanation of PA counseling in a group format (e.g., during sermons). Clergy PA behavior was positively associated with self-efficacy for PA counseling and PA counseling behavior. This dissertation also evaluated the effectiveness of Walking in Faith, a web-based PA intervention that was culturally-tailored for clergy. There was a significant effect of the intervention on some psychosocial, PA behavior, and PA counseling outcomes. Subsequently, focus group discussions were conducted in the churches of clergy that participated in the Walking in Faith study. Congregants believed that the roles for clergy in health promotion are to provide sponsorship of programs, provide informational support (e.g., increase awareness about health-related issues), and serve as role models of positive health behaviors. Congregants indicated that clergy could influence their health and behaviors by providing informational support and by serving as role models of positive health behaviors. This dissertation affirmed that the health behaviors of clergy could impact the health environment of FBOs. It also demonstrated that web-based PA interventions have the potential to modify clergy PA behavior. Targeting the health behaviors of clergy could lead to broad dissemination of public health initiatives to promote PA.
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Chapter 1: Introduction
Background

In 2008, the Physical Activity Guidelines Advisory Committee reported that participating in adequate amounts of physical activity (PA) is associated with a reduced risk of several chronic diseases, including cardiovascular disease, some forms of cancer, and diabetes mellitus (115). Additionally, participation in PA can help control bodyweight and reduce the risk of obesity. In addition to being a risk factor for the aforementioned diseases, obesity is considered a modifiable risk factor for hypertension, hypercholesterolemia, stroke, and osteoarthritis (98). Physical activity has also been associated with reduced symptoms of anxiety and depression, as well as several other mental health benefits (115). Despite the numerous health benefits of participating in PA, it is estimated that approximately 50% of US adults are either insufficiently active or sedentary (30). In the Healthy People 2020 document, the U.S. Department of Health and Human Services highlighted the importance of a multidisciplinary approach to improving health and behaviors in the US (153). This would include developing partnerships with community-based organizations that can help promote and deliver health promotion programs.

Religion plays an integral role in the lives of many Americans. Churches and organized religion are ranked near the top of the most trusted institutions in the US (50). A majority of Americans claim a religious affiliation (113) and statistics from national polls indicate that approximately 40% of US adults attend worship services at least once per week (100, 114). Objective measures of church attendance indicate that the percentage of US adults that attend worship services each week is closer to 20% (55). Based on the more conservative estimates of church attendance, this equates to nearly 65-million adults visiting FBOs each week (151); therein, FBOs are seen as an ideal partner in the community for developing and implementing health promotion interventions. It is asserted that health promotion interventions are more likely
to be successful if they are tailored to the beliefs and preferences of the target population (83, 122). Considering the frequent interactions congregants may have with clergy, it would be beneficial to also examine congregant’s beliefs about the role clergy play in shaping health beliefs.

It is estimated that there are currently approximately 600,000 clergy in the United States (82). Although representing a small percentage of the total US work force (21), clergy serve in an organization frequented by a large portion of the US population. In addition to their liturgical duties, clergy serve as church administrators and often as impromptu counselors for family crises, bereavement, health problems, and a myriad other issues that might arise as part of their regular interaction with members of the congregation. It is the role of the clergy as counselor that has garnered them much interest from health researchers interested in behavior modification and mental health (33, 141, 161, 172). With ample interest in the potential for clergy to counsel congregants on their health and behaviors, it is important to examine further the potential of clergy to provide effective counseling services on health behaviors, such as physical activity (PA). It would also prove valuable to identify the characteristics of clergy who are more likely to engage in counseling on health behaviors.

Clergy members are also positioned to influence organizational policies that can help shape their churches social and physical environment for health. The influence of the social environment on health behaviors has been recognized as one of the most important correlates of health outcomes (152). Clergy could further influence the beliefs and behaviors of congregants by promoting and modeling apposite behavior to their congregation; yet only a few studies have examined the health behaviors of clergy (28, 163). Furthermore, the available research on the health of clergy appears to be equivocal. Specifically, the religious vocation has been associated
with lower than average all-cause mortality rates among clergy (46), yet other research has found that clergy members are disproportionately obese and experience high rates of obesity-related diseases such as arthritis and diabetes (120). This provides a plausible reason for why data on specific-cause mortality indicate that clergy have among the highest mortality rates for chronic diseases such as heart disease and diabetes (23, 163). In addition to physical health issues, clergy are also affected by mental health issues such as depression, anxiety, bipolar disorder, and stress (28, 70, 97, 160, 167).

Although there is limited research available on the health behaviors of clergy, there is evidence to support the health protective effects of PA among clergy for preventing morbidity; clergy that meet current PA recommendations are less likely to be obese, report fewer chronic diseases, and are more likely to report their health as very good or excellent (163). Clergy with more positive health and behaviors are also more likely to report providing more health and wellness programs in their church (17). Additionally, clergy with favorable perceptions of their own health report greater self-efficacy for providing health counseling to their congregants (45). Although more is being learned in this field of study, there are still gaps in the literature on the role of clergy in health promotion that need to be addressed. Specifically, little is known about whether congregants are receptive to, or influenced by, their clergy in regards to health-related issues. That self-efficacy for health counseling among clergy has been measured is a welcome advancement in the literature, but the increased interest in the role of clergy in promoting PA necessitates the examination of whether clergy have self-efficacy for counseling specifically about PA. Although previous studies have highlighted the integral role clergy play in supporting health promotion efforts in churches (25, 37, 112), the literature regarding programs that have specifically targeted the health and behaviors of clergy is scarce. An intervention targeting the
health and behaviors of clergy has the long-term potential to foster lasting changes to the social and physical environment for health in churches that could lead to health benefits for all who frequent places of worship.

**Scope**

The overall scope of this project is to examine the potential of Christian clergy to engage in physical activity promotion. The first study of this project seeks to examine the validity of a clergy PA counseling self-efficacy scale and to examine factors associated with self-efficacy for PA counseling. The second study of this project will examine the effectiveness of a web-based PA intervention for clergy. Lastly, the final study of this dissertation project will include conducting focus groups at the churches of clergy participating in the web-based PA program.

**Aims**

1. To evaluate the validity and reliability of a brief measure of clergy PA counseling self-efficacy.

2. Evaluate the effectiveness of the *Walking in Faith* intervention on various PA-related and psychosocial outcomes (outcome expectations, self-efficacy, self-regulation, social support, and self-efficacy for PA counseling) among clergy members.

3. To examine congregant perceptions about the role of the church and clergy in health promotion.

**Research Questions and Hypotheses**

Aim 1

1.1. To evaluate the validity and reliability of a brief measure of clergy PA counseling self-efficacy.
1.2. To identify the characteristics of clergy reporting greater self-efficacy for providing PA counseling to congregants.

1.3. To assess the contribution of self-efficacy for PA counseling to frequency of providing PA counseling after controlling for the effect of other demographic and behavioral variables.

Aim 2

2.1. It is hypothesized that participants receiving the Walking in Faith intervention will demonstrate significantly greater increases in PA behavior from baseline to three months – as indicated by accelerometer and self-report measures – compared to the control group.

2.2. It is hypothesized that participants receiving the Walking in Faith intervention will demonstrate significantly greater increases in the psychosocial outcomes from baseline to three months compared to the control group.

2.2a. Participants receiving the intervention will show an increase in outcome expectations for PA.

2.2b. Participants receiving the intervention will show an increase in self-efficacy for PA.

2.2c. Participants receiving the intervention will show an increase in self-regulation skills for PA.

2.2d. Participants receiving the intervention will show an increase in social support for exercise.

2.2e. Participants receiving the intervention will show an increase in self-efficacy for PA counseling.
2.3. To examine if changes in PA behavior from baseline to three months are mediated by changes in outcome expectations, self-efficacy, self-regulation, and social support for PA?

Aim 3

3.1 To examine the views of congregants on the role of the church and clergy in health promotion.
Chapter 2: Review of the Literature
Benefits of Physical Activity

In 2010, the four leading causes of death in the United States were heart disease, cancer, chronic lower respiratory diseases, and stroke (93). Ever since the influential study of London Busmen in the 1950’s showed that conductors, whose duties required more physical activity than drivers, had fewer incidents of heart disease and lower mortality rates than the more sedentary drivers (95, 96), it has been accepted that many of the leading causes of death in the United States are preventable. In fact, subsequent studies have reaffirmed the seminal findings of Morris and Heady (95, 96), revealing that PA is associated with reduced all-cause and cardiovascular-specific mortality rates in men (67, 78, 102, 107) and women (36, 67, 78, 101, 102, 125).

Evidence suggests that people who report the most PA are at lowest risk of premature death (72), yet the health protective effects of PA have been seen even when individuals perform less than the recommended amount of PA (78, 105). Indeed, even small improvements in fitness as a result of engaging in an exercise program have led to significant reductions in mortality risk (42); increased fitness is protective even when unhealthy behaviors (e.g., smoking) are accounted for (15). As has been alluded to, the effects of PA on mortality risk are likely mediated by the effects of exercise on the risk of certain chronic diseases.

Participation in PA is protective against several chronic diseases. For example, PA participation is associated with the reduced risk of heart disease (72), the leading cause of death in the United States (93). Regular participation in PA is also associated with the decreased risk of colon cancer and breast cancer (77), as well as Type II diabetes (137). Further, individuals who report more PA, or who are more fit, have a reduced risk of stroke (63, 76). It should be noted that excess body weight, especially obesity, is considered a risk factor for all of the aforementioned diseases (98) and recent data indicates that over one-third of US adults are obese.
The literature indicates that regular PA can help control body weight (65, 128), especially when combined with a healthful diet (92); yet, even in the absence of weight loss, PA has many health benefits (67, 69, 91).

In addition to preventing and reducing the risk of developing chronic diseases, participating in PA also provides secondary prevention by attenuating the effects of diseases such as cardiovascular disease (117, 143). Regular participation in moderate-intensity PA also reduces the body's cardiovascular response (e.g., heart rate increase) to psychological stress (124); psychological stress has been associated with numerous negative health outcomes (145). Reductions in anxiety and depressive symptoms have also been seen in individuals who are regularly active (75). In light of the numerous physical and mental health benefits of PA, it is crucial that individuals include PA as part of their daily routine.

**Physical Activity Statistics**

It is recommended that adults accumulate 150 minutes/week of moderate-intensity PA (60). The Centers for Disease Control and Prevention (30) reports that approximately 50% of US adults currently meet PA recommendations based on self-reported data. There is evidence that some groups are less likely to meet current recommendations for PA; older adults, women, and African-Americans are less likely to meet the current recommendations for PA (59). Data specific to Pennsylvania indicate that 49% of adults are insufficiently active or sedentary, with older adults, women, and African Americans being less likely to meet recommendations for PA (30). Objective measures of PA from the National Health and Nutrition Examination Survey (NHANES) suggest that the number of US adults meeting current recommendations for PA is actually less than 10% (149). It is then possible that more than half of adults in the US are
sedentary or insufficiently active. When considered with the known benefits of PA, this latter finding highlights the need for innovative approaches to increasing PA participation in the US.

**Correlates of Physical Activity**

In order to effect change in PA behavior, it is important to understand the multiple correlates of PA. The ecological perspective posits that PA behavior is influenced by characteristics unique to the individual and by the individual’s interaction with the social and physical environment. The physical and social environment would be represented by the community in which the individual lives, the organization where the individual is employed, the policies and laws the individual is subject to, and the people the individual interacts with on a regular basis.

Models of the ecological perspective place policy-level factors that influence PA behavior at the periphery, often referring to the them as societal factors, thus illustrating the “trickle down” effect policy-level factors likely have on individual-level PA behavior. This is due to the broad impact that federal, state, local, and organizational policies can have on the population of a country, state, city, or neighborhood. Government and organizational policies that guide the development and usage of physical spaces include zoning laws, urban planning, budgetary allocations, employee wellness programs, and policies about the permitted use of organizational resources to promote PA. There is abundant evidence that policy-level interventions can positively impact PA participation (12, 130). As there are no definitive boundaries by which societal, community, and individual-level factors abide, it is acceptable to discuss environmental correlates of PA behavior in both the physical and social context. The physical environment includes factors typically outside the control of the individual that constrain or enable PA behavior. These include factors such as: access to home exercise
equipment or areas for recreation, pedestrian-friendly infrastructure (e.g., street design, bike lanes, and sidewalks), or mass media campaigns with positive health messages. Reviews of the impact of the built environment on PA have found that PA was positively correlated with access to recreation areas, neighborhood design, transportation environment, and aesthetics (12, 130, 131). The social environment is more dynamic and includes variables such as social networks and social institutions that individuals may rely on to help them form attitudes about health behaviors and that assist them in maintaining their health (154); social support from peers and family is consistently associated with engaging in PA for most subgroups of the population (5, 43, 127, 136, 147).

Individual-level correlates of PA behavior include several demographic variables that increase the likelihood of meeting PA recommendations. These variables include being younger, male, and Caucasian, having more education and higher income (59, 150). Perceived health status is also consistently positively correlated with PA behavior (12). Recent inquiry into the correlates of PA behavior have highlighted the potential role that genetics may play in predisposing someone to being more physically active (12), but this area of research is in its infancy. There are also psychological factors correlated with whether or not an individual engages in PA. These include factors such as: intentions to exercise (positive correlate) and perceived effort (inversely correlated) (12). Most notable of the psychological variables correlated with PA behavior is self-efficacy – the confidence an individual has that they can successfully engage in PA – which is consistently correlated with participation in PA (12, 86, 127). Although there is much debate about the causal pathway between outcome expectations for PA (i.e., expected benefits of engaging in PA) and self-efficacy for PA (168), outcome expectations has not been a reliable direct correlate of physical activity (127, 169); thus it is
generally accepted that knowledge of the benefits of PA is necessary, but not sufficient, for changing behavior. An individual’s success at maintaining behavior change may be influenced by how well they regulate their behavior through goal-setting, planning, and self-monitoring. Self-regulatory behavior has been positively associated with positive health behaviors in adults (5, 127).

**Strategies to Promote Physical Activity**

Current evidence overwhelmingly supports the idea that PA behavior, like most behavior, is a complex phenomenon. With the burgeoning health crisis surrounding sedentary lifestyle and obesity in the United States, it is becoming more important that interventionists consider the multiple-levels of influence on PA behavior, as well as the numerous factors at each level of influence, when developing PA interventions. Many of the objectives targeting PA in the United States that were laid-out in Healthy People 2020 (153) were based upon the findings of the US Task Force for Community Preventative Services (154). The recommendations of the task force bare similarities with the Social Ecological Model which states that individual behavior is influenced by multiple levels (89). Two of the strategies recommended by the task force were the development of individually-adapted behavior change programs and social support interventions in community settings. A review of the evidence for effective PA interventions found that individually-adapted behavior change interventions were successful across multiple settings and populations, with the caveat that the materials be adapted to the target population (66). Social support interventions in community settings were found to be successful at increasing PA, fitness, and other health outcomes across multiple settings and populations. This approach was successful regardless of whether new social networks were created or if social networks already existed (66).
Central to the success of any strategy aimed at increasing PA behavior, whether at the population- or individual-level, is that its development is guided by behavioral health theories (9, 51). To date, theories and models used in PA research were developed primarily for the purposes of describing, explaining, and predicting some other health behavior (e.g., smoking cessation, preventative screening). Their application to PA research has yielded a better understanding of the antecedents, mediators, and moderators of PA participation. The utility of theory in PA research is that it assists with the development of research questions and hypotheses; evaluation of the effectiveness of an intervention (9, 52); and the identification of mediators of behavior change (9, 13). Mediators are variables that help to explain the association between the independent variable and the dependent variable (10), and can serve as proximal outcomes in PA interventions (9). Rarely is the association between the independent and dependent variables explained by a single mediator, or simple mediation. More often, theoretically-based interventions will consist of several constructs, or mediators, that may help explain the association between the treatment and outcome.

The numerous environment- and personal-level correlates of PA behavior exemplify the need for a multi-level theoretical framework to guide the development of PA interventions; hence the reason the Social Ecological Model (SEM) has gained much favor in PA research. Although an intervention that targets multiple-levels of influence on individual behavior is preferable (134), there is utility in developing individual-level behavior change interventions if said individuals are in a position to influence the environment and policies of an organization. Thus, behavior change interventions that target influential individuals, such as clergy, would best be informed by behavioral health theories developed with the recognition that individual-level change may impart broader sweeping changes within an organization or community.
Additionally, it is proposed that the theoretical framework that guides the development of a behavior change intervention would benefit from targeting a specific behavior (e.g., PA participation) rather than attempting to effect change on multiple-behaviors (134).

Social Cognitive Theory (SCT) is a behavioral theory that bears similarities with SEM and several of the constructs from SCT are often included in interventions guided by the ecological framework as individual-level constructs. Many of the aforementioned psychological correlates of PA behavior (e.g., self-efficacy, social support, and self-regulation) are constructs of SCT. SCT posits that individual behavior is influenced by the interaction of the individual with their environment, as well as with important others in their environment (8). Bandura proposed that the interaction of the individual with the environment and other people would be reciprocal (bi-directional). He further states that this reciprocity is triadic, that is, that behavioral, personal, and environmental factors interact with each other and the bi-directional influence of these factors is not necessarily equal and may take time to manifest in noticeable changes (8). This is similar to the SEM which posits that individual behavior is influenced by the interaction of multiple factors.

As previously mentioned self-efficacy is consistently positively correlated with PA behavior and is likely the most studied construct from SCT. Bandura (8) suggested that an individual must believe that they are able to engage in a behavior (i.e., the person must possess self-efficacy) and must perceive the expected outcomes of the behavior as desirable. Furthermore, he proposes that an individual must value the expected outcomes of engaging in a behavior (8). Some researchers have argued that outcome expectations, another core construct of SCT, exert a stronger influence on behavior in that they provide the incentive to engage in a behavior (168); still, other researchers believe that self-efficacy is the most important attribute
that determines an individual’s ability to engage in a behavior (8, 40, 88). One of the factors proposed to influence self-efficacy is that of social modeling. According to Bandura, social modeling – seeing a similar other perform a task – is a major influence on self-efficacy (8). Bandura has asserted that behavioral role models must be trusted and respected by the individual that is observing them. Furthermore, the model must be similar enough to the observer that the observer feels they are capable of emulating the behavior of the model (8).

The core constructs from SCT have informed many intervention studies (27, 84, 108), yet most of what is known about the association between SCT and PA behavior comes from correlational studies. Constructs of SCT often targeted because of their consistent positive association with PA behavior are: self-efficacy (2, 13, 68, 133), expected outcomes of PA (13, 68), overcoming barriers to PA (13, 133), and social support for PA (13, 68, 133). The intrapersonal and interpersonal aspect of the constructs of SCT (e.g., self-efficacy and social support) indicates that individuals whose vocation entails regularly interacting with members of the community (e.g., clergy) could be valuable supporters and participants of SCT-based health promotion programs implemented in community-based settings (e.g., FBOs).

The interactive component of some of the constructs of SCT (e.g., social support for PA) would normally preclude intervention strategies that did not place the participants in close proximity to other participants; however, the advent of the internet and other technologies has made it possible to implement interventions in a manner that may be more accessible and accommodating to potential participants. According to the Pew Internet & American Life Project (144), a majority of Americans use the internet, thus adding to the interventionist’s repertoire the ability to deliver interventions via the internet. Web-based delivery of interventions allows for the participation of individuals who would otherwise be impeded by circumstances such as lack
of time and/or proximity to the intervention delivery site. A meta-analysis comparing web-based to non-web-based interventions found that the effect size for web-based interventions on behaviors such as exercise was typically greater than similar non-web-based interventions (159). Other studies have also found that, in general, web-based interventions for PA are successful at increasing the amounts of time individuals spend being physically active (4, 20, 57, 81, 155). The ability to deliver intervention components via the internet would be especially useful when the target population serves within organizations that are decentralized and whose vocation requires them to serve in a manner consistent with being “on call”.

**The Role of Faith-based Organizations in Community**

First, a distinction must be drawn between FBOs as an *organization* and FBOs as an assembly of believers (ecclesia). FBOs are organizations in that they have a physical facility that employs individuals that support the mission of the FBO and it provides a central venue for corporate worship. Wholly different from this concept of FBOs is what is traditionally referred to as an assembly of believers that are “called out”, that is, an ecclesia (Acts 19:25-41, New International Version). For the purposes of this project, FBOs will be identified as an organization that provides a central venue for corporate worship, serving as a formal representative for believers in local and national matters.

One of the first studies to examine the association between religious involvement and a behavioral outcome focused on suicide (39), yet in later years the focus shifted to a more inclusive list of behavioral and health outcomes (46, 54, 71, 79). As researchers continue to seek plausible reasons for the observed associations, David Moberg (94) has offered some insight as he described FBOs as not only religious institutions, but also as a social institutions due to their role in the socialization of individuals in a community, as well as their role in developing social
relationships and unity among its members. The view of FBOs as a social institution is clear when considering the evidence for the activism of FBOs in the global and local community.

Faith-based organizations have been recognized as an agent of social justice, especially for underserved populations (142). Nationally, FBOs has served as a champion of social justice issues surrounding the civil rights of minorities (110), as well as borne a great deal of the humanitarian work carried out internationally (171). In local communities, FBOs have served in many social service roles, including providing food and clothing pantries (106), homeless shelters (11, 64), and many forms of counseling services (33, 140, 141, 161, 172). More recently, the healthcare community has invoked FBOs to take an active role in promoting the health of its members through health services and programs. There are numerous examples of FBOs collaborating with health researchers, or in some cases choosing to implement programs on their own, to provide health programs aimed at promoting, among other things, PA participation (18), cancer screening (109), HIV/AIDS prevention (47) and support (49), and diabetes prevention and self-care (16, 99). Central to the success of these health promotion programs are the men and women charged with leading FBOs – the clergy (25, 37, 112, 148).

The Clergy

It is estimated that there are approximately 600,000 clergy in the United States, not including non-denominational clergy (82). Clergy serve as the spiritual and administrative leaders of churches. Their vocation, or “calling”, includes clerical duties such as officiating funerals and weddings, visiting ill and homebound congregants, providing counseling, and preparing and delivering weekly sermons. Additionally, clergy often spend a large portion of their workday handling administrative tasks (28). Clergy serve in a highly involved and integral vocation, thus it is imperative that their health be examined for their sake and the sake of FBOs.
The men and women that serve as clergy are not immune to the effects of mental health problems including depression, anxiety, bipolar disorder, and stress (28, 70, 97, 160, 167). Burnout among clergy is not uncommon and often results from work-related stress stemming from work-family boundary issues and a perceived inability to discuss their personal struggles with others (24, 31, 61, 80, 97). Other factors likely contributing to the burgeoning stress crisis among clergy include working long hours (28) and conflict between the clergy and their congregants (32). Interestingly, although reporting more work-related stress than most other professionals (46), clergy are also more likely to report high levels of job satisfaction compared to national averages (138). These seemingly contradictory findings do not attenuate the potential negative health effects of work-related stress; stress has been linked to numerous negative physical health outcomes in general (145), and specifically among clergy (166).

The physical health of clergy can be operationalized through mortality rates, as well as general health outcomes such as chronic diseases and weight status. For instance, clergy have been found to have lower all-cause mortality rates compared to their age- and gender-matched counterparts in the general population (46). Without careful scrutiny of the data, it is reasonable to conclude that the clergy vocation, although rife with stress and conflict, offers some health protective effects. This supposition is brought into question by data that indicate clergy have among the highest specific-cause mortality rates for lifestyle-related diseases such as heart disease and diabetes (23). Additionally, clergy have been found to be disproportionately overweight or obese (28, 120, 162), and are affected by high rates of chronic disease (120, 162). In much the same way that clergy job-satisfaction seems at odds with the high levels of work-related stress reported by clergy, clergy have reported better physical health functioning than their age- and gender-matched counterparts, yet have also reported more chronic diseases than
these same counterparts (119). It is postulated that this could be due to the sedentary nature of the clergy vocation which may not be adversely affected by chronic disease, or because clergy exhibit resiliency against functional loss as a result of their dedication to their calling (119). The data provide ample evidence that clergy are disproportionately affected by chronic disease and obesity, thus it would be well advised to target the health and behaviors of clergy in health promotion interventions.

To date, the research literature on clergy and health promotion focuses primarily on the role of clergy in supporting health promotion interventions and on their role as counselors for innumerable personal issues, including those related to health. The role of clergy as counselor has captured the interest of health researchers involved in behavior modification and mental health (33, 141, 161, 172). This is due in large part to the extent of counseling they perform; at one time it was estimated that clergy were sought out for counseling more than psychologists and psychiatrists combined (157). It’s also due in part to characteristics of the clergy vocation that parallel that of physicians, another highly sought-after partner in health promotion (41, 53, 153, 156). Current estimates indicating that there are approximately 600,000 clergy in the United States (82) are nearly identical to the current estimate of approximately 624,000 physicians (all specialties) in the United States (1). Like physicians, clergy interact with a large number of people and, as evidenced by the research, are already providing guidance to their congregants on many issues (28). Another similarity between clergy and physicians deals with the effect of their personal health habits on whether they promote health behaviors. Clergy that report more positive health and behaviors tend to offer more health programming in their FBOS (17), and they also report greater self-efficacy for providing health counseling to their congregants (45). Likewise, physicians with more positive health habits are more likely to promote health
behaviors during patient visits (103). Additionally, physicians with a stronger sense of self-efficacy for counseling and those who report more education regarding health promotion also report engaging in more health counseling (146). Although evidence indicates that FBOs in which the clergy are highly educated are more likely to offer health programs (148), clergy have reported receiving little-to-no training in health promotion or counseling in the seminary training (19, 116). This potential lack of specialized training may serve as a barrier to providing health counseling to their congregants (45). With ample interest in the potential for clergy to counsel congregants on their health and behaviors, it is important to examine further the self-efficacy of clergy to provide counseling services on health-related issues. Although several scales to measure counseling self-efficacy (or competencies) have been developed (14, 26, 62, 90, 126), their focus is typically on broad issues and are not specific to health counseling. Further, these scales typically use technical language that assumes a high level of counseling education.

Although the support of clergy is integral to the success of health promotion interventions (25, 37, 112) and evidence indicates that their health and behaviors are positively associated with providing health programming in FBOs (17) and with self-efficacy for providing health counseling (45), there is little evidence that clergy have been the target of interventions aimed at improving preventative health behaviors. A search of PubMed, SPORTDiscus, and PsycINFO using the keywords clergy, pastor, health, and behavior resulted in the discovery of a single intervention/program targeting the health behaviors of clergy (35); the results of this intervention have yet to be published. A recent review of health programs available to Protestant clergy revealed that most of the programs centered on counseling and support for mental health issues, but there was no mention of programs that were exercise- or nutrition-related (158). Interestingly, a recent study indicated that clergy included health club memberships and personal
trainers among their top three priorities for preferred health programs (121). Qualitative data from the same study revealed that clergy value physical health and that they need health programs that are flexible time-wise, affordable, and that provide for connectedness with other clergy seeking to improve their health (121). The data on clergy health and behaviors indicates the need for a concerted effort to address the health of clergy in a manner that minimizes barriers to participation. Although there is evidence that denominations are aware of this need, current offerings appear to be misaligned with the desires of clergy.

Focus of this Dissertation

The focus of this dissertation will be on examining the potential for clergy to engage in health promotion in FBOs. The first study of this dissertation seeks to examine the validity of a brief measure of clergy self-efficacy for PA counseling. This will provide a means of examining the characteristics of clergy that are associated with greater self-efficacy for providing PA counseling and could help to inform future initiatives that seek to partner with clergy in health promotion. The second study of this dissertation will entail the development and evaluation of a PA program specifically tailored for clergy. The intervention will use a web-based delivery format and will be developed with the guidance of a professional clergy member. The Walking in Faith intervention will be among the first to target the PA behavior of clergy members. The final study of this dissertation seeks to examine congregant beliefs about the role of FBOs and the clergy in health promotion by conducting focus groups in the FBOs of clergy in the treatment and control group of the Walking in Faith intervention.
Chapter 3: Results

This chapter presents three manuscripts whose development and evaluation was based on the methods described in Chapter 3. The first study concerns the validation of a brief measure of clergy physical activity counseling self-efficacy. The second study represents the evaluation of Walking in Faith, a culturally-tailored, web-based physical activity program aimed at modifying psychosocial and behavioral outcomes associated with physical activity. The third study explored the views of congregants about the role of the church and clergy in health promotion, with the congregants representing the churches of clergy who were in the Walking in Faith study.
Manuscript One: Clergy Physical Activity Counseling Self-Efficacy
Abstract

Clergy regularly provide guidance to their congregants on a variety of personal issues. There is increased interest in the role clergy can play in promoting physical activity (PA) to their congregants, thus it is important to examine the PA counseling practices of clergy, as well as the factors influencing the clergy’s self-efficacy for providing PA counseling. The Clergy Physical Activity Counseling Self-Efficacy Scale (CPACS) was developed to measure the confidence clergy members have for providing PA counseling to congregants. Confirmatory factor analysis (CFA) of data from 497 clergy was used to assess the adequacy of the items used to measure two latent factors: self-efficacy for time and self-efficacy for preparedness to engage in PA counseling. The CFA indicated that that the proposed model was a good fit and there was evidence supporting the convergent, discriminant, and concurrent criterion-related validity of the measure. Factor-derived scale scores produced good internal consistency and test-retest reliability. Health education, meeting PA recommendations, Body Mass Index (BMI), health status, and education level were significantly associated with the time sub-scale of the CPACS. Health education, meeting PA recommendations, and education level were significantly associated with the preparedness sub-scale of the CPACS. After controlling for other significant variables, both sub-scales of the CPACS contributed significantly to the explanation of PA counseling in a group format. After controlling for other significant variables, neither of the sub-scales of the CPACS contributed significantly to the explanation of PA counseling in an individual format. The CPACS could be used as a brief measure of clergy self-efficacy for providing PA counseling. This study identified factors associated with self-efficacy for PA counseling and PA counseling behavior that could be modified through intervention studies.
Introduction

Clergy are often cited as the main source of spiritual and emotional support for religious adherents (14, 16, 20), thus they have been the focus of much research regarding their role in providing mental health counseling to their congregants (1, 20, 38, 43). Surges in societal concerns regarding obesity, chronic disease, and access to healthcare have expanded upon the interest in the counseling practices of clergy to include counseling for health behaviors, such as physical activity (PA). There are three reasons for this increased interest: 1) the efficacy of health counseling as a viable tool in modifying health behaviors, 2) the indisputable health benefits associated with regular PA, and 3) the fact that clergy lead the faith-based organizations (FBOs) thought to have broad reach for dissemination of positive health messages.

Health counseling is an intervention tactic commonly used due to evidence supporting its efficacy in helping people modify their health beliefs and behaviors (2, 31). Once a tool typically reserved for mental health professionals such as psychologists, health counseling has made its way into the toolbox of other health-related professions. For example, studies have examined the potential of physicians to counsel their patients on health behaviors such as PA (33, 50, 51). Laypersons have also been trained to provide health counseling as part of health promotion programs, both in secular (18, 44, 45) and faith-based settings (10). Health counseling in some form has become a mainstay in health promotion efforts, including those focused on modifying PA behavior.

There is overwhelming evidence that regular PA reduces the risk for many chronic diseases and reduces mortality rates associated with cardiovascular disease, diabetes, and some cancers (41). Still, according to the Centers for Disease Control and Prevention (12), less than 50% of adults meet the current recommendations for PA, with 24% reporting no leisure-time PA
at all. In light of these reports, the National Physical Activity Plan Alliance (37) and the US Task Force for Community Preventative Services (48) have included partnering with community-based organizations as one of their recommended strategies for promoting PA participation.

According to survey data from the Pew Research Center (39), over 75% of Americans claim a religious affiliation; with 40% reporting that they attend worship services at least once/month (40). Based on current data from the US Census Bureau (47), this is equivalent to approximately 102-million people having contact with FBOs each month. Even if estimates of worship attendance are overly liberal, as some have suggested (23), the expansive platform offered by FBOs for promoting PA has led to much speculation about the possible public health impact that could be realized if efforts to partner with FBOs are successful. As their administrative and spiritual leaders, clergy have been singled out as the chief ally in efforts to promote PA through FBOs.

Much of the faith-based health promotion research thus far has focused on the role of clergy in mental health counseling, but there are a few studies examining the physical health counseling practices of clergy. One study found that clergy reporting greater proxy efficacy for health counseling, more comfort in providing health counseling, and who had more positive perceptions of their own health, were more likely to engage in health counseling (21). These results are promising, but it is unknown whether these findings would hold across specific domains of health behavior such as PA. Still, the prevailing perception is that clergy are positioned to impact the beliefs and behaviors of congregants through counseling (i.e., speaking with congregants in groups or privately). Whether clergy engage in health counseling may be influenced by their self-efficacy for providing health counseling.
Self-efficacy concerns the confidence an individual has to successfully engage in a task (4); thus, self-efficacy for health counseling (SEHC) can be defined as the confidence an individual has in their ability to engage in counseling on topics related to health. The chief concern for researchers recruiting clergy to deliver health messages within FBOs might be the clergy member’s confidence to even initiate the practice. For example, during the implementation of a PA intervention with a counseling component, adequate delivery of the counseling component could be affected by SEHC. As such, it would prove useful during the planning stages of an intervention to assess SEHC if counseling were to be a component of the intervention. An added usefulness of assessing SEHC would be the capability to develop interventions aimed at modifying factors associated with higher levels of SEHC. This process depends on the availability and appropriateness of a measure of SEHC.

Scales measuring counseling self-efficacy are available (25, 26, 29), but these tools may not be suitable for the purposes of assessing SEHC among clergy. For example, the Counseling Self-Estimate Inventory (COSE) (26) is a 67-item instrument specifically designed for use with professionally-trained counselors, with the items being more representative of counseling for emotional health. The scales developed for counseling self-efficacy have focused on the clinical counseling profession, thus these scales presuppose a level of counseling knowledge not attained by most clergy. Although some seminary schools have included counseling as part of their curriculum, the literature indicates that clergy often feel unprepared to function as counselors (9, 22, 34, 42). Also, counseling may not be an activity that clergy are concerned with improving their aptitude for. For example, in the Pulpit and Pew Study (11), 75% of the clergy surveyed excluded counseling from their list of top three strengths, and only 28% listed counseling as one of the things they needed to improve upon. Accordingly, a scale developed to assess SEHC
among clergy might consider whether clergy have self-efficacy for preparedness to take on the task.

In keeping with proposed best practices for scale development (17), a measure of clergy SEHC should be designed with consideration for the time it would take to complete the measure. Presenting clergy with time-consuming measures may risk overburdening a population who, by most reports, is overworked (11, 49), stressed out (27, 36, 49, 52) and prone to burnout (15, 19, 28, 30, 32, 35). These factors might also increase the risk of clergy minimizing the effort they have to put into their responses by simply choosing positive answers, a phenomenon known as satisficing (46). Thus, a measure of clergy SEHC would necessarily be succinct, while also considering whether clergy have self-efficacy for overcoming perceived barriers (i.e., lack of time) to providing counseling.

Self-Efficacy Theory (4) indicates that self-efficacy may be domain-specific; self-efficacy for providing mental health counseling does not automatically equate to self-efficacy for providing dietary counseling. For example, a general measure of SEHC may indicate that clergy have high SEHC, yet if they were asked to rate their confidence in providing health counseling on specific domains of health (e.g., PA counseling), decrements in self-efficacy may become apparent. As a matter of practicality, specificity would be a necessary element in a measure of SEHC being used to inform the design of an intervention.

The evidence reviewed previously suggests that time and preparedness to provide health counseling may be major factors to consider when assessing SEHC among clergy. In the present study, we examined the associations between self-efficacy for time to engage in PA counseling, self-efficacy for preparedness to engage in PA counseling, demographics, and PA behavior. We
also examined the associations between frequency of providing PA counseling, self-efficacy for PA counseling, demographics, and PA behavior.

Method

A web-based survey was used to conduct this study that sought to validate a brief measure of clergy PA counseling self-efficacy. This study was approved by the Institutional Review Board at Pennsylvania State University.

Development of the Clergy Physical Activity Counseling Self-Efficacy Scale

The items chosen for the Clergy Physical Activity Counseling Self-Efficacy Scale (CPACS) were based on the synthesis of the existing literature regarding the time-demands of the clergy vocation (11, 15, 19, 27, 35, 49, 52) and the literature suggesting that lack of education or training was a barrier to clergy providing counseling (9, 22, 34, 42). The items chosen were intended to tap into the sub-domains of time for PA counseling and preparedness for PA counseling. Three public health researchers with experience working with FBOs and two ordained clergy members were asked to review and rate the items initially submitted for inclusion in the CPACS (see Appendix A). Subsequently, changes to the wording were made to some of the items and two of the items were dropped from the scale. The items dropped from the scale included a statement regarding knowing when to refer someone to a professional and a statement deemed to be indicative of desired capabilities.

Participants

Participants were 497 professional clergy from the seven major Christian denominations in Pennsylvania, as indicated by the Association of Statisticians of American Religious Bodies (3). The clergy represented one of seven denominations: United Methodist Church (n = 203),
Evangelical Lutheran Church of America (n = 113), United Church of Christ (n = 84), Presbyterian Church – USA (n = 49), Roman Catholic Church (n = 23), American Baptist (n=13), and the Episcopal Church (n = 12). A sub-sample of the participants (n=44) repeated the survey within three weeks of completing the initial survey.

Measures

Demographics: A demographics survey was used to collect information from participants on their age, gender (0 = female, 1 = male), race (0 = non-white, 1 = white), height, weight, health status (0 = good or less, 1 = very good/excellent), years in ministry, educational level (0 = less than Master’s degree, 1 = Master’s degree or higher), and education related to health (0 = no, 1 = yes). Height and weight was used to calculate the Body Mass Index (BMI) of the respondents according to the guidelines of the American College of Sports Medicine (53).

Clergy Physical Activity Counseling Self-Efficacy Scale (CPACS): The scale consisted of seven items intended to measure self-efficacy for time and preparedness for providing PA counseling. Participants were instructed to “indicate whether you think the following statements are true or not true about your confidence in providing counseling to your congregants about physical activity.” Participants were also provided with a definition of PA and some examples of related activities (e.g., brisk walking). Each item used a 4-point Likert-type scale where respondents could rate an item as 1 (‘Not true of me at all’) to 4 (‘Completely true of me’). The items are listed in Table 1.

Validation measures: To assess concurrent criterion-related validity, participants were asked to report the frequency that they spoke about PA to their entire congregation (i.e., group format) using a 5-point Likert scale ranging from 1 (‘Never’) to 5 (‘Very Often’). Participants were also asked to report the frequency that they spoke about PA in one-on-one counseling sessions using
a 5-point Likert scale ranging from 1 (“Never”) to 7 (“Daily”). For the purposes of analysis, the responses to the group format question were dichotomized as 0 = Low Frequency (never/rarely) and 1 = High Frequency (sometimes/often/very often). The responses to the one-on-one counseling question were also dichotomized as 0 = Low Frequency (never/less than once a month) and 1 = High Frequency (once a month or more).

**Physical activity:** Participation in moderate and vigorous PA was quantified using the PA module of the Behavioral Risk Factor Surveillance System (13). The module asks respondents to report the volume (frequency and minutes) of moderate and vigorous PA they participate in per week. Total minutes per week spent in moderate PA and vigorous PA was calculated and used to determine if participants were meeting the current recommendations for PA participation (24).

**Procedure**

**Recruitment:** Email addresses (n = 3,667) for clergy employed by the top seven denominations in Pennsylvania were retrieved from the directories on the denomination websites. Although a random sampling method would have been preferable, it is unknown if all clergy members make their contact information available on their denominations website, thus we must define this as a convenience sample. Because we were not seeking to examine denominational differences at this stage, email addresses were kept in aggregate and clergy were contacted via email inviting them to complete a web-based survey about the counseling practices of clergy (see Appendix B).

**Statistical Analysis:**

Basic frequencies and descriptive statistics were conducted. All analyses, except the confirmatory factor analysis, were performed using SPSS version 20.0 with the significance level set at p < 0.05.
Validity and Reliability of the CPACS: Confirmatory factor analysis (CFA) using maximum likelihood estimation was used to assess the adequacy of the items used in the CPACS. The model for the CFA was tested using IBM® SPSS® Amos Version 21.0.0 (Meadville, PA). Pearson correlations were calculated for the measures to assess convergent and discriminant validity. Pearson correlations were also calculated to examine the test-retest reliability of the measure. Cronbach’s alpha was calculated to provide an estimate of the internal consistency of the two factors. Concurrent criterion-related validity was assessed by regressing the factor summary scores on reported frequency of engaging in PA counseling in group (sermons) and individual sessions.

Characteristics of Clergy with Higher Scores on CPACS: We used simple linear regression to examine the associations between the self-efficacy factor summary scores and seminary education related to health (0=No, 1=Yes), PA behavior (0=not meeting recommendations, 1=meeting recommendations), and demographic variables (age, gender, BMI, health status, years in ministry, and education level). Variables found to have a significant association with the self-efficacy factor summary scores were entered into a multiple regression model to examine their relative contributions to self-efficacy for providing PA counseling.

Associations with providing PA counseling: We used simple linear regression to examine the associations between frequency of providing PA counseling (group-based and individual-based) and counseling, seminary education related to health (0=No, 1=Yes), PA behavior (0=not meeting recommendations, 1=meeting recommendations), and demographic variables (age, gender, BMI, health status, years in ministry, and education level). Variables found to have a significant association with PA counseling behaviors were entered into a hierarchical regression
model at step one, with the sub-scales of the CPACS entered at step two to examine the unique variance they explained variance in PA counseling behavior.

**Results**

**Missing Data**

A total of 532 surveys were initiated. Review of the survey responses revealed that 35 surveys were less than 10% complete, so these surveys were excluded from the analysis. Data imputation was not necessary as the remaining surveys were ≥90% complete, with all incomplete surveys being the result of the respondent not clicking the “Submit” icon on the final screen. A final sample of 497 clergy was obtained.

**Characteristics of the Sample**

Participants ranged in age from 25 to 82 years (M = 53.65, SD = 10.69). Sixty-six percent of the participants were male, 97% were white, non-Hispanic, and 43% were obese. Participants reported an average of 19.61 years in ministry (SD = 12.71), 91% reported having a Master’s degree or higher related to their ministry, and 35% reported having received some education related to health. Fifty-nine percent of the participants reported meeting current PA recommendations. Due to the lack of diversity in the sample, race was not included in the analyses.

**Confirmatory Factor Analysis**

After the first run of the CFA, one of the items used to assess preparedness to engage in PA counseling loaded poorly (0.43) on the parent factor. Although the comparative fit index (CFI) (5) was 0.955 with this item in the model, a value indicative of a good fit, other indices of goodness-of-fit indicated that the model was a poor fit. For instance, the root mean square error
of approximation (RMSEA) was equal to 0.126, a value indicative of a poor fit (8). Likewise, the PCLOSE was <0.05, which is also indicative of a poor fit. Because the factor loading of the item and the model fit were both poor, the item was removed from the model and the CFA was repeated. Subsequently, an examination of the modification indices indicated that two pairs of items on the preparedness factor could be co-varied to improve the model fit. After doing so, the CFI (0.987), RMSEA (0.078), and the PCLOSE (0.067) all indicated that the model was good or acceptable. An examination of the standardized residuals revealed no areas of localized strain in the model. The standardized regression estimates of the factor loadings from the final run of the CFA are reported in Table 1.

Pearson correlations provided evidence for the convergent validity of the measures. The intercorrelation for the time measures was significant at 0.65 (p<0.001) and the intercorrelations for the preparedness measures ranged from 0.52 to 0.62, all significant at p<0.001. Pearson correlations provided evidence for the discriminant validity of the measures. The intercorrelation of the two time measures with the four preparedness measures ranged from 0.35 to 0.42, and although these were significant at p<0.001, the measures correlated more highly with variables within their parent factor than with measures outside their parent factor. Additionally, the correlation of the factors in the model was 0.76, which is below the recommended threshold (0.85) for discriminant validity (7).

Reliability

A sub-sample of respondents completed the CPACS again within three weeks as part of the baseline assessment for a PA intervention trial. We compared them to individuals in the initial sample that were not part of the intervention study. Independent Samples T-tests revealed that individuals in the sub-sample were younger (M = 48.4, SD = 9.8) than individuals not in the
sub-sample ($M = 53.7, SD = 10.7$), $t(495) = 3.09$, $p = 0.002$. There were no other significant differences between individuals in the sub-sample and those who were not, thus we did not feel there was sufficient evidence of a systematic bias in the sub-sample. Test-retest reliabilities for the two factors were calculated as 0.82 (time) and 0.96 (preparedness). The alpha coefficients were 0.77 for the time factor and 0.84 for the preparedness factor.

**Concurrent Criterion-Related Validity**

Simple linear regression revealed that self-efficacy for time to provide PA counseling was positively associated with PA counseling in a group format ($B = 0.11$, $t(495) = 6.44$, $p < 0.001$) and during one-on-one sessions ($B = 0.05$, $t(495) = 3.73$, $p < 0.001$). Self-efficacy for preparedness to provide PA counseling was positively associated with PA counseling in a group format ($B = 0.06$, $t(495) = 6.84$, $p < 0.001$) and during one-on-one sessions ($B = 0.02$, $t(495) = 3.23$, $p = 0.001$).

**Characteristics of Clergy with Higher Scores on the CPACS**

*Self-efficacy for time to provide PA counseling:* Variables significantly associated with self-efficacy for time to provide PA counseling in the simple regression analysis were into a multiple regression model (see Table 2). Health education, meeting PA recommendations, BMI, health status, and education level were all significantly ($p < 0.05$) associated with self-efficacy for time to provide PA counseling, thus they were all included in the multiple regression analysis. All variables, except BMI, remained significant in the full model, accounting for 15% of the variance in self-efficacy for time to provide PA counseling, $F_{(4,492)} = 17.11$, $p < 0.001$, $R^2 = 0.15$. 
**Self-efficacy for preparedness to provide PA counseling:** Variables significantly associated with self-efficacy for time to provide PA counseling in the simple regression analysis were into a multiple regression model (see Table 3). Health education, meeting PA recommendations, BMI, health status, and education level were all significantly ($p < 0.001$) associated with self-efficacy for time to provide PA counseling, thus they were all included in a multiple regression analysis. All variables, except BMI and health status, remained significant in the full model (see Table 3), accounting for 19% of the variance in self-efficacy for time to provide PA counseling, $F_{(4, 492)} = 22.45, p < 0.001, R^2 = 0.19$.

**Associations with providing PA counseling**

**PA counseling in a group format:** To examine the unique contribution of self-efficacy for PA counseling in the explanation of PA counseling in a group format, a hierarchical multiple regression was performed. Variables significantly ($p < 0.05$) associated with PA counseling in a group format were entered in two steps. In step one, PA counseling in a group format was the dependent variable and health education, meeting PA recommendations, and health status. In step two, the sub-scales of the CPACS were entered into the step one equation. Before the hierarchical linear regression was performed, the variables were examined for collinearity. Results of the collinearity tolerance (all greater than 0.86) suggest that the estimated $B$s are well established in the following regression model.

The results of step one indicated that the variance accounted for by the first three independent variables (health education, PA behavior, and health status) equaled 7% ($R^2 = 0.07$), which was significantly different from zero ($F_{(3, 493)} = 12.62, p < .001$). All three independent variables were statistically significant ($p < 0.05$). In step two, the change in variance accounted for by the sub-scales of the CPACS was 5% ($\Delta R^2 = 0.05$), which was significantly different from
zero ($F_{(5, 491)} = 13.74, p < 0.001$). The unstandardized regression coefficients, $t$-values, and $p$-values for the full model are presented in Table 5. Both of the sub-scales of the CPACS contributed significantly to the explanation of PA counseling in a group format, but health education no longer contributed significantly to the explanation of PA counseling in a group format.

**PA counseling with individuals:** To examine the unique contribution of self-efficacy for PA counseling in the explanation of PA counseling with individuals, a hierarchical multiple regression was performed. Variables significantly ($p < 0.05$) associated with PA counseling in a group format were entered in two steps. In step one, PA counseling with individuals was the dependent variable and health education, meeting PA recommendations, and health status. In step two, the sub-scales of the CPACS were entered into the step one equation. Before the hierarchical linear regression was performed, the variables were examined for collinearity. Results of the collinearity tolerance (all greater than 0.86) suggest that the estimated $B$s are well established in the following regression model.

The results of step one indicated that the variance accounted for by the first three independent variables (health education, PA behavior, and health status) equaled 3% ($R^2 = 0.03$), which was significantly different from zero ($F_{(3, 493)} = 4.15, p = .006$). Only health status remained statistically significant ($p < 0.05$) in step one. In step two, the change in variance accounted for by the sub-scales of the CPACS was 2% ($\Delta R^2 = 0.02$), which was significantly different from zero ($F_{(5, 491)} = 4.14, p = 0.001$). The unstandardized regression coefficients, $t$-values, and $p$-values for the full model are presented in Table 4. Neither of the sub-scales of the CPACS contributed significantly to the explanation of PA counseling with individuals.

**Discussion**

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The CPACS was developed and evaluated for the purpose of identifying a succinct measure of clergy self-efficacy for engaging in PA counseling. Analysis of this scale indicates good validity and reliability, and showed that time and preparedness for PA counseling may influence whether clergy provide PA counseling in a group format (i.e., during sermons). This measure could help to identify the attributes of clergy reporting low or high self-efficacy for PA counseling that could function as target variables for interventions aimed at improving clergy self-efficacy for PA counseling.

In developing the CPACS, we were able to discern from the literature key factors that might influence a clergy member’s self-efficacy for PA counseling. Specifically, the literature regarding the vocational demands of clergy (15, 19, 27, 28, 35, 36, 52), as well as their perceptions of being unprepared to provide counseling services (9, 22, 34, 42), helped inform the development of the measure and the hypothesized factor structure. The CFA has presently demonstrated that the measurement model we proposed is acceptable. Although a more exhaustive list of items could have been tested for inclusion in the measure, the primary goal of developing a succinct measure for the purpose of screening clergy for self-efficacy to provide PA counseling was achieved. If partnering with clergy to provide PA counseling to their congregations proves a viable option for PA researchers, it might prove useful to develop a more comprehensive measure to examine additional factors associated with self-efficacy for PA counseling. A more efficient option may be to adapt an existing measure of counseling self-efficacy with the assistance of professional clergy.

Similar to findings from previous studies (6, 21), the results of our study suggest that education and lifestyle choices influence whether clergy feel confident enough to provide PA counseling. For, instance health education and PA behavior were significantly associated with
self-efficacy for PA counseling and whether clergy reported providing PA counseling in a group format. Increasing the amount of health education clergy receive in seminary training could lead to positive effects on the promotion of positive health behaviors to the congregations they serve. Also, efforts to modify the PA behaviors of clergy could lead to improvements in the health environment of FBOs, especially in regards to PA promotion.

In examining the concurrent criterion-related validity, we found that higher scores on the CPACS were significantly correlated with providing PA counseling in both the group format and in individual sessions. However, the sub-subscales only explained a significant portion of the variance in PA counseling in a group format when entered into a hierarchical regression model. It also should be pointed out that neither of the full models explained more than 12% of the variance in PA counseling behavior (group or individual). This indicates that there are other factors influencing PA counseling that need to be examined, particularly in regards to providing PA counseling in an individual format. Also, it should be noted that there are circumstantial differences between speaking about PA during a public sermon and speaking about it during a private meeting. Speaking about PA during a sermon would be subject to the scrutiny of the congregation and may therefore require much preparation, whereas speaking about PA privately with a congregant would most likely be in response to some issue brought forth by the congregant (e.g., health issues). Essentially, situational factors such as audience size may moderate the influence of self-efficacy on PA counseling. The concern of audience evaluation may be especially relevant considering clergy with poor health and behaviors indicate that they feel like a hypocrite to speak about health with their congregation (54). It should also be noted that self-efficacy can precede or result from the performance of a task (4), thus it is unclear from this study the ordering effect between self-efficacy and PA counseling. There is still much to
learn about the influences on PA counseling in FBOs, as well as if modifying self-efficacy for PA counseling among clergy could lead to an increase in PA counseling in FBOs.

With growing interest in the role of clergy in promoting health behaviors such as PA, it is necessary that measures be developed to assess their self-efficacy to perform in this capacity. To the best of our knowledge, this is the first attempt to develop a measure aimed at measuring clergy self-efficacy for providing PA counseling. One of the strengths of our study was the use of a panel of public health researchers and clergy to review the items proposed. This helped improve the content validity of the measure. Also, we were able to obtain a large sample size for the study. However, there are some limitations of the study that should be addressed. First, we used a cross-sectional study design, which limits what can be said about the temporal association between the self-efficacy factors and PA counseling. It will be necessary to use prospective studies to determine whether PA counseling practices are affected by changes in self-efficacy for PA counseling. Second, the participants were mostly white, Christian clergy members. This measure will need to be validated with other racial/ethnic groups, as well as with other religious traditions. Third, an objective measure of PA counseling (e.g., direct observation or congregant feedback) would have been preferable, especially in establishing concurrent criterion-related validity, but due to the large sample size and limited knowledge about how counseling is delivered in FBOs, this was not feasible in this study. Lastly, the number of proposed factors and items in the measure was deliberately limited. This was mainly done to reduce participant burden, but also because this measure was not intended to assess the aspects of the counseling process often considered when working with clinical counselors. By limiting the number of factors and items, it is likely that there are other factors influencing self-efficacy for PA counseling that were not measured (e.g., self-efficacy for the effectiveness of PA counseling).
Being the CPACS does not seek to assess all aspects of the counseling process, we believe it is best suited for use as a brief screening tool for interventionists seeking to recruit clergy as advocates for PA. Use of the CPACS could also lead to a better understanding of the factors that influence the PA counseling practices of clergy. These clergy-level factors could be targeted by interventions for the dual purposes of improving the health and behaviors of clergy and positively impacting the environment for PA promotion in FBOs.


38. Oppenheimer JE, Flannelly KJ, and Weaver AJ. A comparative analysis of the psychological literature on collaboration between clergy and mental-health professionals:


<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
<th>SRE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor 1: Time</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$X_1$: Have time to speak with congregant about physical activity</td>
<td>3.34</td>
<td>0.696</td>
<td>0.899</td>
</tr>
<tr>
<td>$X_2$: Could make time to speak with congregant about physical activity</td>
<td>3.33</td>
<td>0.684</td>
<td>0.703</td>
</tr>
<tr>
<td><strong>Factor 2: Preparedness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$X_3$: Have adequate knowledge of physical activity</td>
<td>3.21</td>
<td>0.726</td>
<td>0.803</td>
</tr>
<tr>
<td>$X_4$: Help a congregant identify barriers to being active</td>
<td>3.23</td>
<td>0.664</td>
<td>0.794</td>
</tr>
<tr>
<td>$X_5$: Help a congregant develop goals to help them become more active</td>
<td>3.00</td>
<td>0.771</td>
<td>0.803</td>
</tr>
<tr>
<td>$X_6$: Have adequate education on the topic of physical activity</td>
<td>2.55</td>
<td>0.908</td>
<td>0.749</td>
</tr>
</tbody>
</table>

Note: SD = standard deviation; SRE = Standardized Regression Estimate
Table 2. Results of multiple regression analysis of variables associated with self-efficacy for time to provide PA counseling (n=497)

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$t$-value</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health education</td>
<td>0.22</td>
<td>2.03</td>
<td>0.04</td>
</tr>
<tr>
<td>Meeting PA recommendations</td>
<td>0.69</td>
<td>6.27</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Body Mass Index</td>
<td>-0.02</td>
<td>-1.91</td>
<td>0.06</td>
</tr>
<tr>
<td>Health status</td>
<td>0.24</td>
<td>2.13</td>
<td>0.03</td>
</tr>
<tr>
<td>Education Level</td>
<td>0.36</td>
<td>2.01</td>
<td>0.05</td>
</tr>
</tbody>
</table>

PA = physical activity; Variance explained = $F_{(4, 492)} = 17.11, p < 0.001, R^2 = 0.15.$
Table 3. Results of multiple regression analysis of variables associated with self-efficacy for preparedness to provide PA counseling (n=497)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health education</td>
<td>0.99</td>
<td>4.48</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Meeting PA recommendations</td>
<td>1.53</td>
<td>6.92</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Body Mass Index</td>
<td>-0.03</td>
<td>-1.59</td>
<td>0.11</td>
</tr>
<tr>
<td>Health status</td>
<td>0.24</td>
<td>1.08</td>
<td>0.28</td>
</tr>
<tr>
<td>Education Level</td>
<td>1.08</td>
<td>2.01</td>
<td>0.003</td>
</tr>
</tbody>
</table>

PA = physical activity; Variance explained = $F_{(4, 492)} = 22.45, p < 0.001, R^2 = 0.19.$
Table 4. Results of hierarchical regression analysis of variables associated with PA counseling in group format (n=497)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health education</td>
<td>0.05</td>
<td>1.96</td>
<td>0.05</td>
</tr>
<tr>
<td>Meeting PA recommendations</td>
<td>0.11</td>
<td>2.37</td>
<td>0.02</td>
</tr>
<tr>
<td>Health status</td>
<td>0.05</td>
<td>1.03</td>
<td>0.31</td>
</tr>
<tr>
<td>SE for time to provide PAC</td>
<td>0.05</td>
<td>2.19</td>
<td>0.03</td>
</tr>
<tr>
<td>SE for preparedness to provide PAC</td>
<td>0.03</td>
<td>2.78</td>
<td>0.006</td>
</tr>
</tbody>
</table>

PA = physical activity; SE = self-efficacy; PAC = physical activity counseling;
Variance explained = $F_{(5, 491)} = 13.74$, $p < 0.001$, $R^2 = 0.12$. 
### Table 5. Results of hierarchical regression analysis of variables associated with PA counseling in individual format (n=497)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health education</td>
<td>0.04</td>
<td>1.32</td>
<td>0.18</td>
</tr>
<tr>
<td>Meeting PA recommendations</td>
<td>0.02</td>
<td>0.51</td>
<td>0.61</td>
</tr>
<tr>
<td>Health status</td>
<td>0.06</td>
<td>1.74</td>
<td>0.08</td>
</tr>
<tr>
<td>SE for time to provide PAC</td>
<td>0.03</td>
<td>1.86</td>
<td>0.06</td>
</tr>
<tr>
<td>SE for preparedness to provide PAC</td>
<td>0.01</td>
<td>0.71</td>
<td>0.48</td>
</tr>
</tbody>
</table>

PA = physical activity; SE = self-efficacy; PAC = physical activity counseling; Variance explained = $F_{(5, 491)} = 4.14$, $p = 0.001$, $R^2 = 0.05$. 
Manuscript Two: Evaluation of *Walking in Faith*
Abstract

The health and behaviors of clergy have been shown to influence the health environment of churches, yet clergy are disproportionately affected by obesity and chronic disease. Physical activity (PA) offers a viable option for addressing the health of clergy. The purpose of this study was to evaluate the effectiveness of a web-based physical activity (PA) program designed for members of the clergy. This pilot study used a two-armed, randomized control design with a wait-list control group. Forty-two ordained, Christian clergy members from Pennsylvania participated in the study. Physical activity was promoted via a 12-week, web-based program. The self-paced, weekly lessons were informed by constructs from Social Cognitive Theory and tailored to the religious beliefs of the clergy. Physical activity was assessed via self-report and accelerometer. Self-efficacy for PA, outcome expectations for PA, social support for PA, use of PA self-regulation skills, and self-efficacy for providing PA counseling were assessed via self-report. Basic frequencies, Independent Samples T-tests, ANCOVA, and omega-squared were used to analyze the data. After controlling for age, gender, and baseline values, there was a significant effect of the intervention on time spent (min/week) in sedentary activity ($\omega^2 = 0.06$), moderate PA ($\omega^2 = 0.15$), moderate-to-vigorous PA ($\omega^2 = 0.15$), self-efficacy for sticking with PA ($\omega^2 = 0.05$), self-evaluative outcome expectations for PA ($\omega^2 = 0.02$), self-efficacy for preparedness to engage in PA counseling ($\omega^2 = 0.08$), and reported frequency of speaking about PA during sermons ($\omega^2 = 0.17$) and individual counseling ($\omega^2 = 0.17$). Use of a web-based, culturally-tailored PA program has the potential to influence psychosocial mediators of PA behavior among clergy and to influence PA promotion practices of clergy.
Introduction

In 2008, the Physical Activity Guidelines Advisory Committee reported that participating in adequate amounts of physical activity (PA) is associated with a reduced risk of several chronic diseases, including cardiovascular disease, some forms of cancer, and diabetes mellitus (51). Additionally, regular participation in PA can help control bodyweight and reduce the risk of obesity; obesity is considered a modifiable risk factor for hypertension, hypercholesterolemia, stroke, and osteoarthritis (45). Physical activity has also been associated with reduced symptoms of anxiety and depression, as well several other mental health benefits (51). Despite the numerous health benefits of participating in PA, it is estimated that approximately 50% of US adults are either insufficiently active or sedentary (18). In the Healthy People 2020 document, the U.S. Department of Health and Human Services (63) highlighted the importance of a multidisciplinary approach to improving health and behaviors in the US. This would include developing partnerships with community-based organizations to help promote and deliver programs to promote PA.

Faith-based organizations (FBOs) are ranked among the most trusted institutions in the US (28). A majority of Americans claim an affiliation with a Christian denomination (49) and statistics from national data indicate that approximately 20 - 40% of Americans attend worship services at least once per week (30, 46, 50), and based on US Census Bureau (62), this equates to a possible reach of 64-127 million people. Due to their potential for broad reach into the community, FBOs are seen as an ideal partner for developing and implementing PA interventions.

The topic of health promotion in FBOs has been reviewed extensively. Among the findings of these reviews are that faith-based interventions can be effective in changing health
behaviors (13, 16, 21) and that clergy play an integral role in the success of faith-based interventions (16, 21, 48). The importance of clergy to faith-based interventions stems from the fact that they are the spiritual and administrative leaders of FBOs and are cited as one of the most trusted professionals in the US (29). Accordingly, clergy are positioned to influence organizational policies regarding health promotion that could possibly influence the health beliefs and behaviors of their congregation. Clergy could further influence the beliefs and behaviors of congregants by promoting and modeling apposite health behaviors; yet only a few studies have examined the health behaviors of clergy (11, 17, 67). Furthermore, the available research on the health of clergy appears to be equivocal. Specifically, the religious vocation has been associated with lower than average all-cause mortality rates among clergy (27), yet other research has found that clergy have among the highest specific-cause mortality rates for heart disease and diabetes (15). This may be associated with reports indicating that clergy members are disproportionately obese and experience high rates of obesity-related diseases (53, 67). In addition to physical health issues, clergy are also affected by mental health issues such as depression, anxiety, bipolar disorder, and stress (17, 35, 44, 65, 70).

Although there is limited research available on the health behaviors of clergy, there is evidence to support the health protective effects of PA among clergy. For instance, clergy that meet current PA recommendations are less likely to be obese, report fewer chronic diseases, and are more likely to report their health as very good or excellent (67). Clergy with more positive health and behaviors are also more likely to report providing resources for health in their church (12) and are more likely to report promoting PA during sermons and individual counseling (66). Additionally, clergy with favorable perceptions of their own health report greater self-efficacy for providing health counseling to their congregants (25).
Although previous studies have highlighted the potential for clergy health and behaviors to influence PA promotion in FBOs, to date there is little evidence that clergy have been the target of interventions aimed at modifying PA behavior. A search of the literature resulted in the discovery of a single study describing the development of an intervention targeting the health and behaviors of clergy (54), but PA behavior was not one of the outcomes of interest listed for this study. The evidence presented earlier indicates that interventions aimed at modifying the PA behavior of clergy have the potential to foster positive changes to the personal health of clergy, as well as to the social and physical environment for health in FBOs. In turn, these positive changes could lead to exposure to positive health messages for those who frequent places of worship.

The purpose of this study was to examine the effectiveness of Walking in Faith (WIF), a 12-week, web-based PA intervention that was culturally-tailored for Christian clergy. The main outcomes of interest were PA behavior and psychosocial variables associated with PA. Secondary outcomes of interest included self-efficacy for providing PA counseling and PA counseling practices. It was hypothesized that participants receiving the WIF intervention would demonstrate significantly greater increases in PA behavior from baseline to three months compared to the control group. It was also hypothesized that participants receiving the WIF intervention would demonstrate significantly greater increases in psychosocial outcomes from baseline to three months compared to the control group. Finally, we also wanted to examine whether participants receiving the WIF intervention would report a significant increase in PA counseling behavior.

Method
Experimental design

This study used a two-armed, randomized control design with a wait-list control group. This study was approved by the Institutional Review Board at Pennsylvania State University.

Description of the Walking in Faith Program

The potential for clergy to positively influence the health environment of FBOs served as the basis for the development of the WIF program. Walking in Faith was a 12-week, web-based program designed by the author to positively influence the PA behavior of professional clergy. The goals of the 12-week curriculum were to increase clergy awareness of the multiple health benefits of PA and to educate them about ways to incorporate PA into their lifestyle. Based on previous findings that culturally-tailored interventions are more effective (37, 55), WIF was tailored to the religious beliefs of the clergy with the assistance of a professional member of the clergy. The WIF intervention included references to health-relevant scriptures from the Bible, as well as narratives about Biblical and contemporary peers of the clergy with the aim of providing models of positive health behaviors that the clergy could relate to. The lessons were designed to be brief (≈ 15 min) and included reflection questions related to the materials. See Table 6 for a description of the weekly lessons.

Based on the research literature that expounds the need for interventions to be theory-based (9, 10), and the individual-level outcomes of interest in this study, WIF was informed by Social Cognitive Theory (8). The intervention materials targeted intrapersonal (self-efficacy, outcome expectations, and self-regulation) and interpersonal (social support) constructs of Social Cognitive Theory. Participants were also provided opportunities to interact in an asynchronous discussion forum regarding the themes of the week’s lesson.
The intervention materials were created using Microsoft PowerPoint® (Microsoft Corp, Redmond, WA) and edited using Adobe Captivate® (Adobe Systems, Inc, San Jose, CA). The intervention materials were delivered via the Moodle® (Free Software Foundation, Boston, MA) platform hosted on www.CRTeacher2.com. We chose a web-based delivery mode for the intervention because clergy are a decentralized workforce, often spread out over large geographic areas. A classroom based curriculum would have required some clergy to travel too great a distance, which would have made their participation impractical. Web-based interventions have been successful at modifying PA behavior (5, 41) and evidence indicates that they can as effective as non-web-based interventions (64).

Treatment Fidelity and Dose-Response

Treatment fidelity was monitored by tracking completion of the weekly lessons for individuals in the intervention group. Intervention group participants were also required to complete a brief quiz at the end of each lesson in an effort to encourage them to thoroughly read the weekly lessons. Number of lessons completed could then be used to examine if there was a dose-response relationship between the intervention and the outcomes of interest in the intervention group.

Recruitment

Participants. Intervention participants (n = 24) were Christian clergy members from FBOs in Pennsylvania. Control participants (n = 18) were also Christian clergy members from FBOs in Pennsylvania. Participants were recruited via email, letters, word of mouth, and at clergy conferences (see Appendix D). Rather than use a hard deadline for recruitment, we used a rolling recruitment method. Recruitment began in March, 2013 and continued until May, 2013. Participants received a free pedometer and a small monetary incentive to participate in the study.
**Screening.** Potential participants were screened over the phone using the PA module of the Behavioral Risk Factor Surveillance System (18) and the Physical Activity Readiness Questionnaire (1) to determine their eligibility to participate in the study (see Appendix C). Participants had to be sedentary or insufficiently active according to the ACSM/AHA guidelines for PA (32) and have no contraindications to exercise. Also, participants had to be age 18 years or older and an active member of the clergy (i.e., not retired) to participate in the study. All participants had to sign an informed consent prior to participation in the study.

**Procedure**

**Baseline assessment.** Participants completed a web-based survey that collected information on demographics, PA behavior, psychosocial variables, and PA counseling behavior. All participants were mailed an accelerometer to wear for a period of seven days, along with instructions on how to wear the accelerometer and a log to record when they wore the accelerometer. A postage-paid envelope was provided to return the accelerometers and logs after the data collection period. Participants received a reminder email and phone call if the accelerometers were not returned within a reasonable amount of time. After the baseline assessment, participants were randomly assigned to the intervention group or wait-list control group. After random assignment, the intervention participants were mailed instructions on how to access the WIF materials, a pedometer, a step count log, and instructions on how to use the pedometer.

**Three-month assessment.** Baseline assessments were repeated and all participants received a $10 gift card. The wait-list control participants also received their free pedometer for participating in the study. Participants in the wait-list control group were offered access to the web-based intervention after they returned their accelerometer in the mail.
Measures

**Demographics.** Participants were asked to report information about their gender, age, race, marital status, number of years in ministry, and education.

**Health Measures.** Participants were asked to report their height and weight. Body Mass Index was calculated for all participants using the guidelines established by the American College of Sports Medicine (4). Participants were also asked to indicate whether they had ever been diagnosed with a chronic disease from a list of options. They were also asked to rate their health status on a 5-point Likert scale ranging from 1 = poor to 5 = excellent.

**Physical Activity. Self-reported PA:** A web-based version of the Community Healthy Activities Model Program for Seniors (CHAMPS) measurement tool was used to collect information on self-reported PA (59) (see Appendix E). The CHAMPS measure was chosen because it contains items specifically related to walking behavior, has been reported as having acceptable test-retest reliability, is positively correlated with caloric expenditure, and is sensitive to changes in PA behavior (31, 59).

The CHAMPS asks respondents to report the number of times per week they perform an activity and then indicate the duration of time they spend doing that activity on a scale from 1 (“Less than 1 hour”) to 6 (“9 or more hours”). The Compendium of Physical Activities (2) was used to calculate the energy expenditure related to low-intensity (<3.0 METs), moderate-intensity (3.0-4.9 METs), and vigorous- intensity (≥5.0 METs) activities. The outcomes of interest were energy expenditure associated with all PA, MVPA, and walking activities.

**Accelerometer:** All participants were required to wear an Actigraph GTX3+® (Actigraph, Pensacola, FL) tri-axial accelerometer for a period of 7 days. Using 7 days will allow for the
collection of weekend PA and is less cost-prohibitive than longer collection periods (42). Participants were provided instructions on proper placement of the accelerometer and asked to wear the accelerometer while they were awake and to take it off for swimming or bathing. Participants were required to complete a wear-time log (see Appendix F). Participants were provided a self-addressed stamped envelope to return the device and log via mail at the end of the 7-day collection period.

The ActiGraph® accelerometer has acceptable test-retest reliability (68) and has demonstrated 90% reliability in assessing physical activity and sedentary behavior (69). Accelerometer data were downloaded and analyzed using ActiLife 6.8.1 Data Analysis Software (Actigraph, Pensacola, FL). ActiLife software allows for automated calculation of different intensities of activity (sedentary, light, moderate, vigorous) using the Matthews accelerometer cut-points for adults (60). ActiLife software also allows for the automated calculation of valid wear days using the recommended minimum of 10 valid-hours/day of wear time to constitute a day of wear (42).

**Pedometer:** Participants in the intervention group received a Walk4Life Classic® pedometer to be worn daily throughout the 12-week intervention to track weekly step-counts. Participants were provided instructions on proper placement of the pedometer and asked to wear the pedometer while they were awake and to take it off for swimming or bathing. They also received a log to track daily step-counts (see Appendix F) and reported their weekly total via the WIF website. The Walk4Life series of pedometers have demonstrated a high level of accuracy in measuring walking steps (20). To avoid the risk of a reactivity bias, the control group did not receive their pedometer until the end of the intervention. The outcomes of interest were total weekly steps and average steps/day.
Psychosocial Measures. Self-efficacy for exercise: All participants were asked to complete the Self-efficacy for Exercise Scale (SES) (58) (see Appendix G). The SES is a 12-item, two-factor (time and stick with it) scale that asks participants to rate their confidence (1 = I know I cannot to 5 = I know I can) that they can motivate themselves to do things to increase their exercise participation for at least six months. This scale has demonstrated acceptable test-retest reliability and good internal consistency (58). In the current study, the reliability of the time scale was good (α = 0.86) and the reliability of the sticking with it scale was good (α = 0.88).

Outcome expectations for exercise: All participants were asked to complete a slightly modified version of the Multidimensional Outcome Expectations for Exercise Scale (OEES) (71) (see Appendix G). The original OEES is a 15-item scale that asks participants to rate how much they agree or disagree (1 = strongly disagree to 5 = strongly agree) with various statements about the physical, social, and self-evaluative benefits of exercise. This scale has demonstrated acceptable construct validity and good internal consistency for all three sub-scales (43, 71). The following items were added to the sub-scales: 1) Exercise will improve my ability to carry out tasks associated with the ministry (physical sub-scale) and 2) Exercise will help me be a role model to my congregation (social sub-scale). In the current study, the reliability of the physical sub-scale was good (α = 0.82), the reliability of the social sub-scale was good (α = 0.85), and the reliability of the self-evaluative sub-scale was excellent (α = 0.91).

Self-regulation for exercise: All participants were asked to complete a self-regulation strategies frequency-of-use questionnaire adapted from a study conducted by Saelens and colleagues (56). This is a 14-item questionnaire that asks the respondent how often or not (1 = never to 4 = often) they say/do certain self-regulatory statements/behaviors (see Appendix G).
The questionnaire has demonstrated acceptable validity and reliability (6, 22). In the current study, the reliability of the self-regulation questionnaire was excellent ($\alpha = 0.99$).

**Social support for exercise:** All participants were asked to complete the Social Support for Exercise Scale (SSES) (57). The SSES is a 13-item scale that asks participants to report how often (1 = none to 5 = very often) their friends or family are supportive of them engaging in exercise (see Appendix G). Following the recommendations of the scale developers (57), family will be defined as “individuals living in the same household” and friends will be defined as “friends, congregants, and fellow clergy”. This scale has demonstrated acceptable test-retest reliability and internal consistency (24, 57). In the current study, the reliability of the social support from family sub-scale was acceptable ($\alpha = 0.64$) and the reliability of the social from friends sub-scale was good ($\alpha = 0.77$).

**Self-efficacy for providing PA counseling:** All participants were asked to complete the Clergy Physical Activity Counseling Self-efficacy Scale (CPACS). The CPACS is a 7-item, two factor (time and preparedness) measure that asks clergy to indicate how true or not true (1 = not true of me at all to 4 = completely true of me) they think statements are about their confidence in providing PA counseling to their congregants (see Appendix G). The validity and reliability study associated with the CPACS is currently under review, but did demonstrate good validity and reliability. In the current study, the reliability of the time sub-scale was acceptable ($\alpha = 0.74$) and the reliability of the preparedness sub-scale was good ($\alpha = 0.82$).

**Self-reported PA Counseling Behavior:** Participants were asked to report the frequency that they talked about PA during sermons (1 = never to 5 = very often) and during individual counseling (1 = never to 7 = daily). Frequency of talking about PA during sermons was dichotomized as 0 = No (Never/Rarely) and 1 = Yes (Sometimes/Often/Very Often). Frequency
of talking about PA during individual counseling was dichotomized as 0 = Low (Never/Less than once a month) and 1 = High (Once a month or more).

**Statistical analyses**

Basic frequencies and descriptive statistics were calculated. T-tests and $\chi^2$ analyses were conducted to assess baseline differences between intervention and control group participants in demographics, PA behavior outcomes (accelerometer and the CHAMPS survey), psychosocial outcomes, and PA counseling behavior (sermons and individual counseling).

An ANCOVA was conducted to examine changes between the intervention and control group in PA behavior, psychosocial outcomes, and PA counseling between the intervention and control group. Age, gender, valid wear time (total minutes), and baseline measures for each outcome of interest, were included in the model as covariates. The $p$-value for all of the analyses was set at 0.05.

We calculated the omega-squared ($\omega^2$) to estimate the effect of the intervention on all of the PA behavior, psychosocial, and PA counseling outcomes. It is recommended that $\omega^2$ be used in place of Cohen’s $d$ or eta-squared when working with a small sample size as it provides a less-biased estimate of the variance in the dependent variable accounted for by the independent variable in the population for a fixed-effects model (26). The magnitude of the effect size is interpreted as being small (0.01), medium (0.06), and large (0.14) (26). Omega-squared was calculated using the following formula:

$$\omega^2 = \frac{SS_{effect} - (dfeffect)(MS_{error})}{MS_{error} + SS_{corrected total}}$$

**Results**
Demographic Variables

A description of the participants is shown in Table 7. Intervention (n=24) and control (n=18) participants were recruited from various churches throughout Pennsylvania. The majority of participants were male, white, married, and held a Master’s degree or higher. There were no significant differences found on any of the demographic variables between the intervention and control group. All intervention and control group participants completed the baseline and 3-month self-report assessments.

Physical Activity Variables

Self-Reported PA: Baseline and 3-month PA behavior values are shown in Table 8. There were no significant group differences in PA behavior at baseline. After controlling for baseline values, the results of the ANCOVA indicated that although the intervention group reported an increase in energy expenditure associated with all PA, moderate-to-vigorous PA (MVPA), and walking, the increases were not significant compared to the control group.

The effect size analysis showed there was no effect of the intervention on self-reported PA outcomes, thus our hypothesis that intervention participants would show significant increases in self-reported PA compared to the control group was not supported.

Accelerometer Measured PA: Baseline and 3-month objectively measured PA behavior values are shown in Table 9. After uploading participant’s accelerometer wear-time logs, the data were analyzed for valid days of wear (>10 hours/day). Participants without seven days of valid wear time (n = 15) at both pre-testing and post-testing were excluded from the analysis, leading to a final sub-sample of 27 (intervention = 14, control =13). An independent samples t-test revealed no significant differences between participants excluded from the analysis and participants included in the analysis on any of the demographic, behavioral, or psychosocial
outcomes. We used Matthews (60) accelerometer cut-points to examine time spent in sedentary, light, moderate, and vigorous activity. At baseline, an independent samples t-test revealed no significant differences between control and intervention participants in time spent in sedentary, light, moderate, vigorous, or MVPA. After controlling for age, gender, valid wear-time, and baseline values, the results of the ANCOVA indicated a significant effect of the intervention on time spent (min/week) in sedentary behavior, $F(1, 24) = 11.18, p = 0.003, \omega^2 = 0.06$, moderate PA, $F(1, 24) = 8.40, p = 0.008, \omega^2 = 0.15$, and MVPA, $F(1, 24) = 8.57, p = 0.008, \omega^2 = 0.15$.

The effect size analysis showed there was a medium effect of the intervention time spent in sedentary behavior and a large effect of the intervention on time spent in moderate PA and MVPA; thus our hypothesis that intervention participants would show significant increases in PA behavior compared to the control group was supported.

**Pedometer Measured PA:** No statistical analyses were conducted on PA measured by the pedometers due to low adherence of the intervention participants ($n = 8$) to the data collection protocol. This includes failure to return the written log and/or failure to properly record their step counts on the WIF web-site.

**Psychosocial Variables**

Baseline and 3-month psychosocial values are shown in Table 7. There were no group differences in the psychosocial variables at baseline. After controlling for age, gender, and baseline values, the results of the ANCOVA indicated a significant effect of the intervention on self-efficacy for sticking with PA, $F(1, 39) = 6.80, p = 0.003, \omega^2 = 0.05$; self-evaluative outcome expectations for PA, $F(1, 39) = 4.56, p = 0.039, \omega^2 = 0.02$; and self-efficacy for preparedness to engage in PA counseling, $F(1, 39) = 9.36, p = 0.004, \omega^2 = 0.08$. 
The effect size analysis showed there was a small effect of the intervention on self-efficacy for sticking with PA and a medium effect on self-evaluative outcome expectations for PA. There was a medium effect of the intervention on self-efficacy for preparedness to engage in PA counseling. Our hypothesis that intervention participants would show significant increases in psychosocial variables compared to the control group was partially supported.

**Physical Activity Counseling Variables**

Baseline and 3-month PA counseling values are shown in Table 8. There were no group differences in PA counseling variables at baseline. After controlling for baseline values, the results of the ANCOVA indicated that there was a significant effect of the intervention on reported frequency of speaking about PA during sermons, $F(1, 39) = 9.75, p = 0.003, \omega^2 = 0.17$; and speaking about PA during individual counseling, $F(1, 39) = 12.6, p = 0.001, \omega^2 = 0.17$.

The effect size analysis showed there was a large effect of the intervention on reported frequency of speaking about PA during sermons and a large effect of the intervention on speaking about PA during individual counseling. No a priori hypotheses were formulated for this outcome of interest.

**Treatment Fidelity and Dose-Response**

An examination of the completion reports for the weekly lessons and quizzes confirmed that 50% of the intervention participants completed all of the lessons and quizzes and the other half completed 6-10 lessons and quizzes. Analyses revealed no significant differences on any study variable between participants that completed all of the lessons and those that did not, thus there was no evidence of a dose-response for the intervention.

**Discussion**
The WIF intervention for clergy highlighted several outcomes that need further study in regards to clergy health and behaviors. Our results indicated that there were improvements in several PA behavior and psychosocial outcomes in the intervention group. Additionally, there was evidence that participation in the study influenced the dissemination of information about PA within the FBOs of clergy in the intervention group. These results suggest that a web-based, culturally tailored intervention may be a viable strategy for modifying the health and behaviors of clergy, with the added potential for the broad dissemination of positive messages about PA within FBOs.

To monitor treatment fidelity, our study design allowed us to observe how many of the weekly lessons were completed by each participant and to also encourage them to carefully read the lessons by implementing a brief, mandatory quiz at the end of each lesson; the quiz had to be completed to move on to the next week. None of the participants completed less than six of the weekly lessons. Our analysis revealed that it did not seem to affect the study outcomes if the intervention participants completed all of the weekly lessons or not. A possible reason for this is that by the sixth lesson the participants would have been exposed to the main components on the benefits, recommendations, and value of PA, as well as some strategies for increasing PA behavior. Perhaps the last six lessons were not necessary for a participant to begin to modify their PA behavior as these lessons included information about the ways clergy could impact the social and physical environment for PA in their churches. It should also be noted that the web-based format of the Walking in Faith curriculum allowed clergy members to complete the lessons at their own pace. For a workforce already burdened by inordinate demands for their time (17, 33, 38, 40, 44), it was important to give participants the flexibility to complete the lessons if and when they had time. An intervention approach requiring more stringent rules for completing
the weekly lessons might have resulted in participants completing far fewer of the weekly lessons or dropping out of the study altogether. Although the intervention was self-paced and the lessons were brief, additional research is needed to determine whether a shorter, less burdensome intervention could be effective in increasing PA behavior among clergy.

Although changes in energy expenditure associated with self-reported PA behavior did not reach significance in the intervention group, it was promising to see an effect of the intervention on objectively measured indicators of PA. As others have pointed out (39), even slight increases in PA could lead to health benefits for those who are out of shape; hence it is encouraging that there was a significant effect of the intervention on nearly all of the objectively measured PA outcomes. As evidence continues to support the detrimental health effects of sedentary behavior (36, 47), it is promising that there was an effect of the intervention on sedentary behavior. Although briefly addressed in the intervention materials, reducing sedentary behavior was not an aim of the WIF intervention. Future studies should also consider including strategies to reduce sedentary behavior among clergy to see if more significant reductions in sedentary behavior could be realized.

There was a variable effect of the WIF intervention on the psychosocial outcomes of interest in this study. Of particular interest was that there was an effect of the intervention on self-efficacy for sticking with a PA program, but not on self-efficacy for making time for PA. Similarly, there was an effect of the intervention on self-efficacy for preparedness for PA counseling, but not on making time for PA counseling. It’s possible that the intervention materials, although addressing strategies related to time-management, did not provide reasonable solutions to the unique time demands of the clergy vocation. Clergy are essentially “on-call” for matters that arise outside of their routine clerical duties and evidence indicates that high
expectations for their time are one of the main reasons they experience burnout (34). Research has found that regular PA provides a protective effect against burnout among clergy (23), thus presenting researchers with the paradox of clergy who are too busy to engage in a behavior that might help them better cope with the time-demands of their vocation. Addressing this issue will require innovative strategies, such as standing or treadmill desks (61), to help clergy incorporate more PA into their daily routine.

Due to the practical implications to the promotion of PA on a larger scale, it is worth discussing the positive effect of the intervention on self-efficacy for preparedness to engage in PA counseling with their congregants. This may indicate that the brief, weekly lessons provided intervention participants with enough information to feel more comfortable speaking about PA. It could also be that clergy who became more active felt more qualified to speak about PA with their congregants, which would be similar to Bandura’s (7) assertion that performance accomplishments influence self-efficacy beliefs. Both of these possibilities are supported by previous findings that showed positive correlations between clergy PA behavior, health-related education, and self-efficacy for providing PA counseling (66). Clergy who feel unprepared to provide counseling are less willing to engage in the practice (14, 52), yet data suggests people seek out clergy for counseling more than psychologists and psychiatrists combined (19). What transpires then is a population frequently providing a service for which they feel unprepared. In light of this, it is important to identify viable strategies for modifying clergy self-efficacy for preparedness to provide PA counseling if PA promotion initiatives continue to seek the involvement of clergy.

Related to the previous discussion, we were interested in whether clergy receiving the intervention would report a greater frequency of talking about PA with their congregants –
characterized as PA counseling – compared to those in the control group. Although we formed no hypothesis around this study outcome, we did find a significant effect of the intervention on the frequency that clergy spoke about PA in sermons and during individual counseling. Whether this is a result of them sharing that they were participating in a PA program or encouraging their congregants to become more active is unknown. Regardless of the motivation, the possibility that clergy spoke more often about PA as a result of the intervention highlights the potential role that clergy can play in disseminating positive health messages in FBOs. Our findings are supported by other studies that have found clergy health and behaviors to be associated with a more favorable health environment in FBOs (11, 12). Much more work is needed to understand how clergy health and behaviors influence how they interact with their congregants on matters related to health. Our measure captured only self-reported frequencies of PA counseling, thus this line of inquiry would benefit from a measure that would also provide an explanation on the context of reported counseling. Also, it would be beneficial to examine whether congregant’s are influenced by hearing their clergy speak about health-related issues.

Although the WIF intervention resulted in positive changes in PA behavior, psychosocial outcomes, and PA counseling behavior, it is important to address the limitations of the study. The most noteworthy limitation of this study was the small sample size. A small sample size makes it difficult to detect smaller effects and to distinguish between true-effects and random variation. Although considerable effort was put into recruiting clergy into the study, it may be necessary to partner with a major denomination to provide institutional support for health interventions and encourage clergy participation to garner a larger sample size. Another limitation of the study is the short time-frame between the baseline and follow-up assessments. Although changes in PA behavior and psychosocial outcomes can be realized in this time frame,
it is impossible to determine the stability of these changes over time. A longitudinal study would be preferable as it would allow for the assessment of whether changes were maintained over time. Our study included an objective and subjective measure of PA behavior, but all other outcomes used only self-report measures which are subject to the risk of recall and social-desirability bias. Additionally, there was poor adherence to the pedometer protocol, possibly due to the burden of having to record daily steps and to remember to reset the device every morning. Concurrent use of accelerometers helped to address this limitation, and it is recommended that future studies working with the clergy population consider using accelerometers for the purposes of collecting data on PA whenever feasible. Finally, our study included mostly white, Christian clergy from Protestant denominations. Although the results of our study may not generalize to clergy from different racial/ethnic backgrounds, Christian denominations (e.g., Roman Catholic), or religions, it was necessary to limit the generalizability of the study in order that it be culturally-tailored to the beliefs of the target population. Studies involving other racial, ethnic, or religious groups would necessarily be tailored to their specific beliefs and customs.

These limitations withstanding, there were some promising findings in our study. This study showed that culturally-tailored, web-based interventions have the potential to modify clergy PA behavior and beliefs. Furthermore, it demonstrated that targeting the PA behavior and beliefs of clergy could lead to dissemination of positive messages about PA to those who frequent FBOs. Given the unique nature of the clergy vocation, it is important to continue exploring innovative strategies for promoting PA among this population, especially in light of the potential for FBOs and clergy to reach a large segment of the US population with health promotion efforts.
References

<table>
<thead>
<tr>
<th>Week</th>
<th>Title</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Journey Begins</td>
<td>PA recommendations and benefits; risks of sedentary behavior</td>
</tr>
<tr>
<td>2</td>
<td>The Gift of Health</td>
<td>Vocational and personal value of living an active lifestyle</td>
</tr>
<tr>
<td>3</td>
<td>Persevere Under Trial</td>
<td>Identifying and overcoming common barriers to PA</td>
</tr>
<tr>
<td>4</td>
<td>Press on Towards the Goal</td>
<td>Goal-setting, monitoring progress, and rewards</td>
</tr>
<tr>
<td>5</td>
<td>Finding a Suitable Helper</td>
<td>Enlisting social support from family, friends, and colleagues</td>
</tr>
<tr>
<td>6</td>
<td>Calming the Storm</td>
<td>Role of PA in stress management</td>
</tr>
<tr>
<td>7</td>
<td>Tending to the Flock</td>
<td>Importance of modeling positive health behaviors</td>
</tr>
<tr>
<td>8</td>
<td>Though You May Stumble</td>
<td>Preparing for potential setbacks and reassessing goals</td>
</tr>
<tr>
<td>9</td>
<td>Food for the Journey</td>
<td>Basic nutrition principles that compliment an active lifestyle</td>
</tr>
<tr>
<td>10</td>
<td>Many Parts, One Body</td>
<td>Holistic health - promoting all aspects of health</td>
</tr>
<tr>
<td>11</td>
<td>His Will Be Done</td>
<td>Revisiting the many benefits of an active lifestyle</td>
</tr>
<tr>
<td>12</td>
<td>Lasting Transformation</td>
<td>Planning for long-term maintenance of an active lifestyle</td>
</tr>
</tbody>
</table>

PA = physical activity
Table 7. Description of the Sample

<table>
<thead>
<tr>
<th></th>
<th>Intervention Group (n=24)</th>
<th>Control Group (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% male</td>
<td>58</td>
<td>61</td>
</tr>
<tr>
<td>Age in years, mean (SD)</td>
<td>49.3 (9.9)</td>
<td>47.1 (9.7)</td>
</tr>
<tr>
<td>% white</td>
<td>96</td>
<td>100</td>
</tr>
<tr>
<td>% married or living with partner</td>
<td>88</td>
<td>94</td>
</tr>
<tr>
<td>Years in ministry, mean (SD)</td>
<td>16.7 (9.9)</td>
<td>13.9 (10.2)</td>
</tr>
<tr>
<td>% Master’s degree or higher</td>
<td>79</td>
<td>83</td>
</tr>
<tr>
<td># of chronic diseases, mean (SD)</td>
<td>1.5 (1.4)</td>
<td>1.8 (1.6)</td>
</tr>
<tr>
<td>% reporting health as very good/excellent</td>
<td>33</td>
<td>17</td>
</tr>
<tr>
<td>Body Mass Index (kg/m²), mean (SD)</td>
<td>31.6 (8.7)</td>
<td>29.4 (5.4)</td>
</tr>
</tbody>
</table>

Note: SD = standard deviation
Table 8. Baseline and 3-Month Means for Behavioral, Psychosocial, and Counseling Outcomes (SD)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Baseline</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I (n=24)</td>
<td>C (n=18)</td>
<td>I (n=24)</td>
<td>C (n=18)</td>
<td>ES</td>
</tr>
<tr>
<td><strong>Self-Report PA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All PA (kcal/wk)</td>
<td>4,895 (2,999)</td>
<td>5,373 (3040)</td>
<td>6,567 (4,662)</td>
<td>5,721 (4,096)</td>
<td>0.00</td>
</tr>
<tr>
<td>MVPA (kcal/wk)</td>
<td>3,278 (2,484)</td>
<td>3,592 (2,329)</td>
<td>4,409 (3,723)</td>
<td>3,473 (2,954)</td>
<td>0.00</td>
</tr>
<tr>
<td>Walking (kcal/wk)</td>
<td>981 (585)</td>
<td>1,330 (956)</td>
<td>1,942 (1,732)</td>
<td>1,400 (1,038)</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Psychosocial</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE for PA – making time</td>
<td>3.24 (0.84)</td>
<td>3.19 (0.77)</td>
<td>3.50 (0.89)</td>
<td>3.19 (1.01)</td>
<td>0.00</td>
</tr>
<tr>
<td>SE for PA – sticking with it</td>
<td>3.38 (0.85)</td>
<td>3.40 (0.92)</td>
<td><strong>3.61 (0.85)</strong></td>
<td><strong>3.18 (0.88)</strong></td>
<td>0.05</td>
</tr>
<tr>
<td>OE – physical</td>
<td>31.3 (2.8)</td>
<td>31.0 (3.6)</td>
<td>31.8 (2.9)</td>
<td>30.9 (3.8)</td>
<td>0.00</td>
</tr>
<tr>
<td>OE – social</td>
<td>16.4 (2.8)</td>
<td>14.9 (3.8)</td>
<td>17.7 (2.6)</td>
<td>15.7 (3.9)</td>
<td>0.00</td>
</tr>
<tr>
<td>OE – self-evaluative</td>
<td>21.6 (2.8)</td>
<td>21.3 (3.7)</td>
<td><strong>22.2 (2.5)</strong></td>
<td><strong>20.1 (4.4)</strong></td>
<td>0.02</td>
</tr>
<tr>
<td>SS – family</td>
<td>22.6 (11.5)</td>
<td>21.7 (7.7)</td>
<td>23.2 (10.9)</td>
<td>22.9 (8.5)</td>
<td>0.00</td>
</tr>
<tr>
<td>SS – friends</td>
<td>15.0 (5.1)</td>
<td>16.2 (5.6)</td>
<td>14.3 (4.9)</td>
<td>15.7 (5.7)</td>
<td>0.00</td>
</tr>
<tr>
<td>SRS (frequency of use)</td>
<td>5.83 (4.21)</td>
<td>5.22 (3.41)</td>
<td>6.21 (4.16)</td>
<td>5.33 (3.33)</td>
<td>0.00</td>
</tr>
<tr>
<td>SE for PAC - time</td>
<td>7.04 (1.04)</td>
<td>6.50 (1.04)</td>
<td>7.04 (1.04)</td>
<td>6.50 (1.04)</td>
<td>0.02</td>
</tr>
<tr>
<td>SE for PAC - preparedness</td>
<td>13.5 (1.8)</td>
<td>12.4 (1.8)</td>
<td><strong>13.8 (1.9)</strong></td>
<td><strong>12.2 (1.8)</strong></td>
<td>0.08</td>
</tr>
<tr>
<td><strong>PA Counseling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sermons (1 = high frequency)</td>
<td>0.21 (0.42)</td>
<td>0.44 (0.51)</td>
<td><strong>0.63 (0.50)</strong></td>
<td><strong>0.22 (0.43)</strong></td>
<td>0.17</td>
</tr>
<tr>
<td>Individual (1 = high frequency)</td>
<td>0.29 (0.46)</td>
<td>0.44 (0.51)</td>
<td><strong>0.58 (0.50)</strong></td>
<td><strong>0.22 (0.50)</strong></td>
<td>0.17</td>
</tr>
</tbody>
</table>

Abbreviations: ESPA = physical activity, MVPA = moderate-to-vigorous physical activity, SE = self-efficacy, OE = outcome expectations, SS = social support, SRS = self-regulation strategies, PAC = physical activity counseling.

Note: Differences at baseline were assessed using t-tests. Differences at 3 months were assessed using an ANCOVA with the baseline measure being included as a covariate in the model. Boldface indicates a significant difference, p<0.05.
## Table 9. Baseline and 3-Month Means for Behavioral Outcomes Measured by 7-Day Accelerometer (SD)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Baseline</th>
<th>3 Months</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I (n=14)</td>
<td>C (n=13)</td>
<td>I (n=14)</td>
</tr>
<tr>
<td>VM Counts (total)</td>
<td>3224385</td>
<td>3304311</td>
<td>3501579</td>
</tr>
<tr>
<td></td>
<td>(967302)</td>
<td>(842913)</td>
<td>(1236055)</td>
</tr>
<tr>
<td>Sedentary (min/wk)</td>
<td>4167 (561)</td>
<td>3912 (625)</td>
<td><strong>3880 (966)</strong></td>
</tr>
<tr>
<td>Light PA (min/wk)</td>
<td>533 (119)</td>
<td>480 (93.2)</td>
<td>547 (98.2)</td>
</tr>
<tr>
<td>Moderate PA (min/wk)</td>
<td>1291 (322)</td>
<td>1235 (315)</td>
<td><strong>1468 (313)</strong></td>
</tr>
<tr>
<td>Vigorous PA (min/wk)</td>
<td>41.1 (31.2)</td>
<td>46.9 (32.4)</td>
<td>47.1 (47.2)</td>
</tr>
<tr>
<td>MVPA (min/wk)</td>
<td>1332 (335)</td>
<td>1282 (316)</td>
<td><strong>1515 (349)</strong></td>
</tr>
</tbody>
</table>

Abbreviations: VM = vector magnitude, PA = physical activity, MVPA = moderate-to-vigorous physical activity.

Note: Differences at baseline were assessed using t-tests. Differences at 3 months were assessed using an ANCOVA with age, gender, valid wear-time, and the baseline measure being included as a covariate in the model. Boldface indicates a significant difference, *p* < 0.05.
Manuscript Three: Focus Group Discussion Results
Abstract

As evidence continues to support the integral role that the church and clergy can play in health promotion initiatives, it is important to consider the views of individuals who frequent worship services at these churches (congregants) on the role of the church and clergy in health promotion. Focus group discussions were used to examine the views of congregants on the role of the church and clergy in promoting the health of the congregation. Data from the FGDs were transcribed verbatim and analyzed using thematic content analysis. Four churches participated in the FGDs (intervention =2 and control =2), with each FGD having six participants. All congregants believed that faith and health were interconnected. Congregants believed the churches role in health promotion was to provide informational and instrumental support; only intervention churches cited specific examples of programs related to physical health in their church. Congregants agreed that the main roles for clergy in health promotion are to sponsor programs, provide informational support, and serve as a role model. Most congregants said clergy could influence their health and behaviors by providing informational support and by being a role model. All of the congregants indicated that clergy should role model health behaviors, address the food culture of the church, and delegate responsibility for health programming. This study showed that congregants believe there is a role for the church and clergy in health promotion. It also highlighted the potential for clergy to influence the health environment of the church by modeling healthy behaviors and supporting health programs. This study indicated that the health and behaviors of clergy may be relevant factors to faith-based health promotion.
Introduction

There is a substantial body of literature concerning the role of the church and clergy in addressing mental health issues (10, 11, 24, 29, 32, 35). By and large, this literature highlights the significant role clergy play in providing emotional support to their congregations. There is also growing interest in the role of the church and clergy in supporting initiatives related to physical health. Research regarding this topic reveals that the success of church-based health promotion efforts depends in large part on the support and involvement of the clergy (4, 5, 7, 21). Evidence also indicates that the health and behaviors of clergy may help shape the health environment of the church (6). In their study, Bopp and Fallon found that clergy physical activity (PA), as well as fruit and vegetable intake, were positively associated with the amount of health resources offered in churches, while body mass index was negatively associated. Despite these promising findings, several studies have shown clergy to be disproportionately affected by obesity and chronic disease (8, 25, 33). Due to the prevalence of church attendance in the US (22), it is a matter of practical importance to address clergy health and behaviors as a possible means of promoting PA to a large segment of the US population.

Despite evidence supporting the connection between clergy health behaviors to the health environment of churches, and research outlining poor health among clergy, there are few signs that clergy health behaviors have been the focus of faith-based interventions. Due to its numerous health benefits (23), PA offers a viable option for addressing the health issues affecting clergy. Although clergy PA behavior has shown a favorable association with health promotion in the church in cross sectional studies, at this point it is unknown if efforts to modify clergy PA behavior would also influence the health environment of the church. An important first step in exploring this topic would be to develop and implement interventions aimed at
changing clergy PA behavior, followed by an assessment of any changes that occur at the church-level. It would be useful to also examine whether individuals who attend church (congregants) are supportive of the church and clergy engaging in health promotion, as well as if they are cognizant of the health environment of their church.

In light of the aforementioned gaps in the literature, a PA intervention called Walking in Faith (WIF) was developed and implemented among a sample of Christian clergy members and is described in detail elsewhere. In addition to encouraging clergy to become more active with this culturally and spiritually tailored intervention, clergy were urged to reflect on their influence as a role model within their churches and consider the importance of promoting and modeling PA in their church. The aim of the current study was to assess congregant views on the role of the church and clergy in health promotion. Focus group discussions (FGDs) were used to gather qualitative data from the congregants. The data gathered in this study could aid in the development of survey measures aimed at examining church- and clergy-level factors associated with church-based health promotion.

Method
This was a qualitative study using FGDs to collect information from study participants. This study was approved by the Institutional Review Board at Pennsylvania State University.

Site Selection
There were 41 churches associated with clergy in the WIF program that were eligible to host FGDs. Of these, six churches were located within reasonable driving distance (≤ 50 miles) of the investigators. These six churches were contacted via email and/or phone to participate in the study. Four of the churches agreed to participate in the study.
Participant Recruitment

In keeping with recommendations on conducting FGDs covering non-commercial topics (17), we set a recruitment goal of six to eight participants for each focus group. The dates and times for the FGDs were scheduled with the churches, and then participants were recruited via flyers and newsletters circulated throughout the church (see Appendix H). To be eligible for the FGD, congregants had to be 18 years of age or older and could not be employed by the church. Further, participants had to of been attending worship services at the church for a minimum of 12 months. This was done to increase the likelihood that congregants had adequate exposure to the church and clergy to form opinions about the health environment of the church. Participants received a small monetary incentive to participate in the FGDs.

Description of Focus Groups

The FGDs included 24 congregants from four different churches (six per church). The participants were mostly female (71%) with a mean age of 46.6 years (SD = 11.2). All of the participants were white and had been attending their church for an average of 8.3 years (SD = 4.5). The FGDs were conducted within the church, typically in a multipurpose room. The discussions were audio recorded and transcribed verbatim for the purpose of analysis. Discussions lasted approximately one hour and were facilitated by a trained moderator who was accompanied by an assistant.

Discussion Questions

Focus group discussion questions were developed by the researchers (see Appendix I). A semi-structured questioning route was used to ensure each FGD followed the same format. Questions were aimed at examining congregant’s views about the role of churches and clergy in the community, the lives of congregants, and in promoting the health of their congregation. Due to
the *a priori* interest in the topic of PA promotion in churches, none of the questions specifically mentioned PA in order to avoid influencing the participant’s responses. The moderator provided clarifiers as needed to make clear the question using terms that may be more familiar to the participants (e.g., “clergy” was replaced by “your pastor”). The main questions used are presented in Table 10.

**Data analysis**

Transcripts of the audio recorded discussions were entered into NVivo 10.0 (QSR International PTY Ltd.). The transcripts were analyzed using thematic content analysis (20), an inductive analysis technique used to identify recurring themes among the data. The analysis included examining the transcripts for recurring themes that were relevant to the questions presented to the congregants. The questions were truncated and used as the main categories for which the themes would be assigned. Overarching themes were identified and described with the assistance of descriptive quotations from the participants. Subsequently, a thorough discussion of the accuracy and relevance of the themes was carried out by the investigators. Anytime frequencies of themes are reported, we used generic terms (e.g., none, few, or most) due to the intent of this study to inform the development of a quantitative measure that could be used with a larger sample in future studies.

**Results**

Common themes were identified according to how consistently and extensively the congregants discussed them. Some themes were mentioned minimally by discussants and were not discussed in detail, thus they are not included in the results of this study. Only the major themes will be expanded on from this point forward, with the most common themes listed first.
Role of the Church in the Community

Providing instrumental support. The common response congregants gave when asked about the role of the church in the community was to refer to the provision of resources to the community. For example, a male congregant said, “We have a church council that when you get wind of someone in the community that has needs for something, whether they belong to our church or not, everybody kind of discusses it and somehow, either help or money, or whatever they need, gets to them.” Also, a female congregant stated, “Because we also have a food bank, which is awesome. And we also have a soup kitchen for about three and a half years.”

Providing emotional support. Congregants discussed the role the church plays in providing emotional support to people in their community. Most often they talked about how they provided bereavement support and comfort during illnesses. For example, a male congregant mentioned, “…just a year ago a woman killed herself and she had a son that was around 13 and this was [the family’s] first stop. They knew that there was somebody here that they could lean on.” Similarly, another male congregant indicated, “Yes, we do hospital visitations for people who are sick.”

Providing informational support. Quite often the congregants talked about the programs they had for religious education. They indicated that these programs were offered to the entire community. A female congregant referenced these programs, saying, “…and then there’s our AWANA program, a children’s elementary Bible education program that has various members from the community.”

Role of the Church in Personal Life

Providing opportunities for fellowship. The most commonly cited role of the church in the personal life of the congregants was to provide opportunities for fellowship. The congregants
viewed the church as place to build relationships and often referred to the church as their family. For example, a female congregant said, “We don’t have any family around here, so just when we need anything it’s really the church family that we go to for help.” In a similar vein, a male congregant stated, “It’s my primary club. There are a number of people I’ve gone to church with here for 35 years. I don’t mean to refer to the church as club, but there is a big aspect of this church that is social.”

Providing informational support. Congregants referenced the importance of the church in providing them with religious education and helping to inform their worldview. For example, a male congregant said, “The church provides leadership in the study of God’s Word. The church provides opportunities for our children to learn scripture in a fun, informative environment.” Another male congregant stated, “I think that being involved in a church shapes your worldview and your perspective and just the core of who you are.”

Providing instrumental support. When asked about the role of the church in their personal life, congregants talked a lot about the different programs and activities the church offered for the congregation. A female congregant said, “I attend women’s groups and deaconess things as well, so we’re here an awful lot.” A male congregant echoed this sentiment, stating, “It’s the core of my wife and my activity. We both do crafts and things like that, and she plays the organ and that’s really important to her.”

Role of the Clergy in Church

Providing informational support. Most often the congregants referred to the leadership roles that clergy fill in the church. Specifically, spiritual leadership was the overarching theme in this category. A male congregant captured this theme nicely, saying that, “Clergy are leaders in the study of God’s Word, who have an expertise in sharing the deeper understanding that they have
developed through their studies.” Likewise, another male congregant stated, “I think that their role is to shepherd us as a congregation and to help us grow, to be there for us and be like a shepherd with sheep.”

Providing emotional support. Many of the congregants talked about the role clergy play in providing emotional support to the congregation. The most common mode of emotional support cited was counseling for personal problems (e.g., bereavement support and marital issues). A female congregant summed it up succinctly by saying, “They do a lot of counseling. Yeah, a lot of counseling.”

The Link between Faith and Health

Health is multidimensional. Congregants overwhelmingly agreed that health comprised physical, mental, and spiritual aspects. This view was summed up by a male congregant who said, “I think our faith, our pursuit of Jesus, sort of puts the areas of spiritual, emotional, and physical health in perspective. We live with an internal perspective, but we know that our bodies were really made for this world…”

Faith and health are interconnected. Most of the congregants acknowledged the interconnectedness of their faith and the different aspects of health. Specifically, they mentioned the reciprocal relationships between spiritual, physical, and mental health. For instance, a female congregant stated, “I think my faith really helps me to be stronger, particularly emotionally. With all that happens in life, the stresses and such, if I didn’t have my faith I’m not sure where I would be.” Another female congregant stated, “You have to feel good, and you feel good if you’re exercising and eating healthy, but you also feel good inside if your faith is where it’s supposed to be. They are all connected to each other.”
Role of the Church in Health Promotion

Providing instrumental support. When asked about the role of the church in promoting the health of the congregation, most of the responses included something about the provision of space and resources. Commenting on this theme, a female congregant mentioned that her church “…had a conference here recently on spiritual and emotional health and that’s a huge thing to be able to offer not only the space, but also the time and energy for something like that.”

Providing emotional support. Many of the congregants indicated that the church was integral to their emotional health. For instance, a male congregant commented that, “There’s been lots of times that I come to church tired and I’ve had a bad week, but I’m glad I made time to come to church and I know I felt better and I know I was nicer to people around me because I came here.”

Role of Clergy in Health Promotion

Providing sponsorship of programs. Unequivocally, the most common response given by congregants when asked about the role of clergy in promoting the health of the congregation was that clergy were responsible for allowing programs to go forward (i.e., they are “gatekeepers”). For example, a female congregant said, “…they are involved in the decisions, like to allow the Pilate’s class. So they’re helping to just allow that stuff to happen.”

Providing informational support. Most of the congregants agreed that clergy could use the pulpit as a place to promote health and increase awareness about health programs or services in the church. For instance, a female congregant stated, “even the simple things of like [clergy name] on Sunday will do announcements and talk about some activity that is going on at church or in town. He calls attention to that kind of stuff in a positive note.”
Serving as role model. The congregants shared the view that clergy could serve as an example to their congregation. The impression given was that clergy are seen as role models, even if they are not intending to be. Case in point, a female congregant indicated that “…clergy are held up as the role models. I mean they’re definitely role models, but I think that they’re almost under a microscope as far as how they live their lives.”

Influence of Clergy on Personal Health and Behaviors

Informational support. When asked how they felt clergy could influence their personal health and behaviors, congregants overwhelmingly agreed that increasing awareness about the importance of taking care of their health could be impactful. This sentiment is summed up by a male congregant who stated, “Well I think what you need to do is bring the awareness. And it may be a sermon. And then you follow up a sermon with action. In other words have a plan. The awareness is out there so let’s start making that change. And maybe it’s a series of sermons or something. But then follow up.”

Serving as a role model. The theme of role modeling reemerged when congregants were asked about how clergy could influence their health and behaviors. For example, a male congregant said, “By being an example. If they say something or do something and show us that they are trying something, well, that influences how we perceive them and whether we will try and imitate or mimic them.” Another male congregant stated, “I like seeing physically fit – on a normal scale, not necessarily P90X™ fit – pastors. I appreciate hearing stories about activities they do with their families where some physical or mental challenge is involved. I believe this promotes these activities by members of the congregation.”

Suggestions for Clergy in Regards to Health Promotion
**Address food culture.** When asked what suggestions they might give to clergy in regards to health promotion in the church, there was consensus among congregants that something must be done about the food culture of the church. Much of the discussions centered on the prevalence of food-related social events that did not provide healthy food choices. A female congregant summed it up in saying, “*One of the things about all of our social gatherings is you sit in the basement at a table and chairs like this with a big plate of food or ice cream. Those are our social gatherings and I think that maybe the social gatherings could be varied a little bit more.*”

**Delegate Responsibility.** Most of the congregants indicated that clergy need to recruit and develop lay leaders to help with this task. For instance, a female congregant shared this opinion, “…*the other thing I think is teaching the congregation how to do that with each other. Because you can’t expect our pastors to be everything to 600 people, they’re exhausted. I see also along with this is their role of teaching us how to be a part of something like that, you have an idea like let’s get together for a walking group, okay now organize that.*”

**Be a role model.** Many of the congregants said that they would suggest that clergy consider serving as role models of positive health behaviors. A male congregant stated, “*I think it should be a part of who they are and what they do to provide spiritual, physical and emotional guidance to the congregation.*” Another male congregant supported this theme, saying, “*As tough as it is, you are an example in every aspect of your life. Model what you want physically and emotionally as well as spiritually.*”

**Discussion**

As efforts to partner with churches and clergy to deliver health promotion interventions continues, it is important to collect information from congregants about their views on the role of
the church and clergy in promoting their health. The findings suggest that the church may serve as an essential vehicle for delivering health programs and activities to the community and congregation. Our findings have implications for the continued development of interventions aimed at modifying the health and behaviors of clergy. They also indicate that the health and behaviors of clergy are not unnoticed by their congregants, and efforts to modify clergy health and behaviors may influence the scope of health promotion in churches. These factors need to be more thoroughly investigated if church-based, as well as clergy-based, health promotion efforts are to be successfully implemented and sustained.

Congregants acknowledged that the church and the clergy were integral in providing social support (instrumental, emotional, and informational) to the congregation, as well as to the community at large. This finding concurs with other research that has highlighted the role of the church in providing a venue for individuals to receive social support (16, 28). Likewise, the research literature is indicative of the supportive role clergy play in the lives of congregants (10, 35). The social support offered by attending church and interacting with clergy may be an important factor to initiating and maintaining PA behavior (1, 19, 30).

There was never a sense among the congregants that the church had no role to play in health promotion, nor that health was something to be viewed as distinct from their faith. This is in contrast to the opinions of some clergy who believe matters of physical health fall outside the mission of the church (34). Congregants also acknowledged that health was multidimensional (physical, spiritual, and mental) and believed that there was a reciprocal relationship among the different dimensions. Although some in the academic community are skeptical of a link between religion and positive health outcomes (26), others have amassed a considerable amount of evidence indicating a health protective effect from religious involvement (15). At a minimum,
we can say that perceptions among the congregants favored the latter view, in that many of them believed their spiritual health to be linked to their physical and mental health. This could partially explain why congregants had a favorable opinion about the churches role in health promotion. There is some historical precedence in regards to the church being engaged in health promoting endeavors (18), and although some of these church-based initiatives have given way to secular administration (14), it appears congregants continue to believe that the church can provide for more than their spiritual needs. This belief is supported by evidence that church-based health programs are effective at improving physical-health outcomes among congregants (9).

The major themes that emerged in regards to the function of clergy in health promotion focused on their roles as gatekeepers and role models. Much of the literature on clergy supporting and promoting health promotion, whether it is mental or physical health, has referenced the importance of recognizing them as “gatekeepers” of the church (7, 27, 31, 32). Congregants echoed this sentiment throughout the FGDs, often talking about the clergy “allowing” programs or activities to take place. It was obvious from the FGDs that clergy are perceived as controlling the flow of information and resources in the church, thus it would be crucial to gain the support of clergy in the early stages of developing an intervention to make sure they appreciate the value of promoting the health of their congregation. This may help increase their comfort with granting investigators access to their congregation. Just as important would be the consideration for the health and behaviors of clergy being a recurring theme across the FGDs was that clergy could or should be role models of apposite health behaviors; congregants emphasized the importance of clergy “practicing what they preach” in regards to healthy behaviors. That role modeling was of such importance to the congregants has
implications for the theoretical framework that could inform the development of faith-based interventions. For example, role modeling is akin to observational/vicarious learning (learning by watching how others behave), which is a central component of Social Cognitive Theory (3). In short, Social Cognitive Theory proposes that observational/vicarious learning can help increase a person’s self-efficacy for engaging in a behavior, especially if it is accompanied by verbal guidance or persuasion. A meta-analysis of interventions aimed at increasing self-efficacy for PA found that vicarious learning had a consistent effect on self-efficacy (2), further highlighting the important role clergy can play in modeling healthy behaviors to their congregations. As clergy model positive health and behaviors to their congregation, this could lead to improvements in the health environment of the church (6).

All of the congregants agreed that clergy need to address the harmful food culture of their church. Unhealthy food choices and an overemphasis on food at social events was the common complaint, which might partially explain why some research indicates Body Mass Index is higher among those with greater church attendance (12, 13). In addition to targeting health behaviors such as PA, church-based interventions should necessarily include strategies to address healthy eating. Additionally, congregants indicated that clergy need to consider recruiting and developing lay leaders to head up health programming in order to reduce their workload. Once again, congregants called on clergy to consider how they might serve as role models to the congregation on matters related to health.

The key strength of this study was the opportunity to allow congregants to speak candidly about the role of the clergy in health promotion. Much of the literature on the role of clergy in health promotion had focused on their role as resource-bearers and supporters, but this study allowed congregants to discuss other ways in which clergy might influence the health
environment of the church. This study also benefited from having a diverse sample in regards to age and gender. However, it should be noted that this study used a small sample of congregants whose opinions may not be reflective of all individuals who attend church. There is the risk of a selectivity bias, where congregants with more interest in the topic of health volunteered to participate in the study. This further highlights the need for a more objective measure that could be distributed to a larger sample of congregants. Further, there may be information unknown to the congregants that influences whether their church or clergy engage in health promotion (e.g., denominational policies or budgetary constraints). Consideration for other influences on church-based health promotion would need to be addressed using a more comprehensive measure.

The findings from this study provide valuable insight into the potential of the church and clergy to encourage their congregation to participate in healthy behaviors. Of particular importance to researchers is the prevailing view that clergy could and should serve as role models of positive health behaviors. Targeting the health behaviors of clergy could potentially lead to favorable changes to the health environment of churches by influencing clergy both as role model and as gatekeeper. These findings also highlight the need to develop a more comprehensive, quantitative assessment tool that could be used to identify factors associated with health promotion in churches. The information learned from this tool could help interested parties (e.g., interventionists, denominations, and clergy) develop goals and strategies for addressing the health environment of churches with the intent of positively impacting the health and behaviors of those who attend church.
References


Table 10. Main Focus Group Questions

<table>
<thead>
<tr>
<th>Question</th>
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<tbody>
<tr>
<td>In your opinion, what role does the church play in the community?</td>
</tr>
<tr>
<td>And what role does the church play in your life and your family’s life, if that applies?</td>
</tr>
<tr>
<td>What kind of roles do clergy have in the church?</td>
</tr>
<tr>
<td>We want to get your opinion about some things regarding the topic of health. Keep in mind that you can define health any way you feel is appropriate. Do you think that there is a link between faith and health?</td>
</tr>
<tr>
<td>What role does the church play in promoting the health of its congregation?</td>
</tr>
<tr>
<td>And how about the clergy? What role do they play in promoting the health of the congregation?</td>
</tr>
<tr>
<td>Do you think there are ways that clergy could influence your health beliefs or behaviors?</td>
</tr>
<tr>
<td>Are there some things you wish your clergy would do more of to help promote the health of the congregation?</td>
</tr>
</tbody>
</table>
Chapter 4: Overall Discussion
Significance

This dissertation has contributed to the growing body of literature on the role of FBOs and clergy in PA promotion. The study validating a brief measure of clergy self-efficacy for PA counseling provided insights into some modifiable factors associated with PA counseling practices among clergy. The study evaluating the effectiveness of the Walking in Faith physical activity program for clergy showed that a web-based, culturally-tailored intervention could influence psychosocial and behavioral factors associated with PA, and could potentially influence PA promotion in FBOs. The final study of this dissertation revealed that congregants hold a favorable view of the role FBOs and clergy in promoting the health of the congregation and provided further evidence of the influence clergy health behaviors can have on the health environment of FBOs.

Evaluation of the Clergy Physical Activity Counseling Self-Efficacy Study

The purpose of this study was to assess the validity of a brief measure of clergy PA counseling self-efficacy (CPACS). This study used a cross-sectional design to collect data from clergy from the top seven denominations in Pennsylvania.

The model used to test the CPACS included two latent factors: time for PA counseling and preparedness for PA counseling. Confirmatory factor analysis indicated that the proposed model was a good fit and evidence for the validity and reliability of the measure was obtained. This study also identified several factors associated with higher self-efficacy for PA counseling. Having received health education, meeting PA recommendations, Body Mass Index, very good/excellent health status, and education level were all significantly associated with self-efficacy for PA counseling. The analyses also revealed that self-efficacy for PA counseling
explained a significant amount of the variance in providing PA counseling in a group format, but not in individual counseling sessions. Health education and PA behavior were consistently associated with self-efficacy for PA counseling and providing PA counseling in a group format, with PA behavior explaining most of the variance in these outcomes.

The results of this study provide valuable insight into the factors associated with PA counseling practices among clergy, but there are some limitations that could be addressed in future studies. The most notable limitation regards the limited number of factors and items included in the proposed model. Although the model was intentionally brief and restricted to two factors (time and preparedness) based on the literature indicating these factors are a chief concern for clergy, this also limits what can be interpreted from the scale. There may be additional items and/or factors that could help explain more variance in the PA counseling practices of clergy. Additionally, this measure will need to be validated with a more ethnically diverse sample, as well as with other religious traditions. Aside from these limitations, this study provides the basis for which to explore more thoroughly the factors associated with the PA counseling practices of clergy.

Going forward, it may prove more efficient to modify and adopt existing counseling self-efficacy instruments for use in the clergy population. These instruments would have been developed with greater scrutiny considering their intended application with individuals who would have received extensive education and training in counseling (8). At this point, there is little evidence that clergy are being sufficiently prepared in seminary to provide counseling at the level these instruments are designed to assess (4, 12, 15), thus the CPACS offers a starting point from which to develop more comprehensive measures.
Consistent with the literature suggesting that the health and behaviors of clergy influence the health environment of FBOs (3), PA behavior had a significant effect on self-efficacy for PA counseling and PA counseling practices in this study. These findings resemble other studies that indicate personal PA behavior influences whether healthcare providers provide PA counseling (9). Future studies should consider targeting clergy PA behavior as a means of influencing PA promotion in FBOs.

**Evaluation of Walking in Faith**

The purpose of this study was to evaluate the effectiveness of *Walking in Faith*, a web-based PA program culturally-tailored for clergy. This study used a two-arm, randomized control design with a wait-list control group.

Participants assigned to the intervention group showed significant increases in some psychosocial and behavioral outcomes compared to the control. There was a significant effect of the intervention on self-efficacy for sticking with their PA program, self-evaluative outcome expectations for PA, self-efficacy for preparedness to provide PA counseling. There was also a significant effect of the intervention on time spent (min/wk) in sedentary behavior, moderate PA, MVPA, and frequency of providing PA counseling to congregants (group and individual format).

Although this study used a short time-frame between the baseline and follow-up assessments (12 weeks), it should be noted that organizations involved in longer PA intervention trials (20 weeks) have requested 12-week durations to reduce participant burden (16). Also, the results of our study may not generalize to clergy from different racial/ethnic backgrounds, Christian denominations (e.g., Roman Catholic), or religions, but it was necessary to limit the generalizability of the study in order that it be culturally-tailored to the beliefs of the target
population to increase the likelihood of its effectiveness (7). Studies involving other racial, ethnic, or religious groups would necessarily be tailored to their specific beliefs and customs. Despite these limitations, this study demonstrated the potential effectiveness of a web-based, culturally-tailored PA intervention for clergy.

Although web-based interventions have been successful at modifying PA behavior (14), I recommend that interventions aimed at modifying the PA behavior of clergy investigate alternative modes of delivering the intervention materials (e.g., smart phones and podcasts). This may help increase accessibility to the intervention for a population characterized as having busy work schedules (5). It might also prove effective to seek the support and participation of the denomination in promoting the health and behaviors of clergy, as environmental factors can have a strong influence on the health and behaviors of individuals (10, 11).

The Walking in Faith intervention enabled us to reach individuals belonging to a decentralized workforce who may not otherwise participate in an intervention that required travel or a large time commitment. Although this approach makes it more difficult to control the delivery of the intervention materials, and to obtain objective measures of health and PA behavior, it does help increase the external validity of the study. On the whole, the Walking in Faith intervention demonstrated the potential for a web-based, culturally-tailored intervention to modify psychosocial and behavioral outcomes related to PA. In line with the propositions from the first study, clergy in the intervention group exhibited an increase in self-efficacy for PA counseling and frequency of providing PA counseling.

Evaluation of the Focus Group Discussions
The purpose of this study was to examine the views of congregants on the role of the church and clergy in health promotion. The results of the FGDs revealed that all congregants viewed health as multidimensional and not something to be viewed as distinct from their faith. They also held a favorable view of the role that churches and clergy could play in health promotion, mostly citing how churches and clergy could provide support and permission for health promotion services and activities. The aspect of clergy “allowing” programs to occur agrees with other research that characterizes clergy as the “gatekeepers” of FBOs (13). One of the common themes regarding the role of clergy in health promotion was that they could or should serve as role models for healthy behaviors. Clergy who model positive health behaviors could not only influence the health behaviors of congregants, as suggested by Social Cognitive Theory (1), but could also positively influence the health environment of FBOs (2, 3).

This study provided the unique opportunity for researchers to allow congregants to speak candidly about the role of the church and clergy in health promotion. Keeping this key strength in mind, it is unknown if the opinions of the participants are representative of the entire church. Although the size of the FGDs was determined based on guidelines suggesting that six people are sufficient for FGDs for non-commercial topics (6), it is possible that congregants more interested in the topic of health volunteered for the study. These limitations considered, this study offers unique insights into the role the clergy can play in shaping the health environment of the church.

Future studies should seek to quantitatively measure the beliefs and attitudes of congregants regarding the role of the church and clergy in health promotion. This will not only provide better understanding of the potential for churches to influence the health and behaviors of congregants, but also allow for effectiveness studies aimed at influencing the health
environment of churches. Related to this line of inquiry is the need to develop a church health assessment tool. A tool of this nature would allow for the development and assessment of faith-based interventions using the social ecological perspective (10), which proposes that there are multiple levels of influence on the health and behaviors of individuals.

Overall, this study affirmed the potential for the church and clergy to reach a large segment of the US population with positive messages about health. It also provides support for the position that targeting the health behaviors of clergy could influence the health of environment of churches.

**Overall Summary**

This dissertation examined the validity of a brief measure of clergy PA counseling self-efficacy (CPACS) and sought to identify factors associated with self-efficacy for PA counseling and providing PA counseling. It also sought to evaluate the effectiveness of the *Walking in Faith* intervention in modifying psychosocial and behavioral outcomes associated with PA among a sample of clergy. Lastly, this dissertation examined the views of congregants on the role of the church and clergy in health promotion.

Overall, this dissertation has provided important insights into the potential for clergy to promote PA to a large segment of the US population. This dissertation highlighted the importance of personal health behaviors to whether clergy participate in health promotion. Also, this is one of the first projects to specifically target the health behaviors of clergy. This dissertation may serve as a starting point for the development of new and innovative strategies to improve the health and behaviors of clergy. It also highlights how essential it will be to examine
how health and health behaviors are perceived and promoted among clergy from other religious traditions and cultures.
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Appendices
Appendix A: Self-Efficacy for Physical Activity Counseling Item Rating Example
Greetings from the Physical Activity & Public Health Lab at PSU:

Thank you for agreeing to assist us with the development of a measure of self-efficacy for providing physical activity (PA) counseling. This tool is to be used with clergy and the language contained herein should be reflective of that intent. If you find in any case that the items do not reflect that intent or could be considered offensive, please use the space for additional comments to provide recommendations for improvement.

Please rate each item related to the relevance and alignment with the content area (e.g., time for PA counseling) to help us develop a valid and reliable tool. You will also have the opportunity to suggest adding items within the content areas. For example, if you feel there is an aspect of providing PA counseling that is not captured by the current items you can make specific suggestions for including a new item. Items with a low score will be considered for deletion.

Although all of you have experience working with faith-based organizations as collaborators or as professional clergy, we would still like to provide a brief background to establish the rationale for the development of the self-efficacy for PA counseling measure, as well as a description of the theoretical construct for which the measure is based on (self-efficacy).

Best Regards,

Ben Webb, PhD Candidate
Melissa Bopp, PhD
Background

Ever since the Department of Health & Human Services released the first Healthy People initiatives in 1979, there has been increased interest in partnering with community-based organizations to help promote the health of individuals in the United States. This interest grows each time new statistics are released that reveal much of the burden on the U.S. healthcare system can be attributed to unhealthy lifestyle habits, some of which contribute to unhealthy weight gain. Faith-based organizations (FBOs), due in part to their potential to reach a substantial portion of the U.S. population, have become a favored partner in the community for delivering health promotion programs. Historically, Christian FBOs have provided many social services for their congregation (e.g., financial assistance and counseling) and the community-at-large (e.g., food pantries, homeless shelters, and health clinics). The tendency to engage in social service programs, as well as the preexisting social networks within FBOs, has further developed the favorable view of FBOs as health promotion partners. Researchers that have partnered with FBOs to deliver health promotion programs have noted that one of the most important factors to the success of these programs is the support of clergy.

The potential role of clergy members in health promotion has become a topic of discussion among healthcare practitioners, especially those with interests in providing counseling services. The role of clergy as counselor is beginning to be explored more in depth and recent findings suggest that clergy with more positive health and behaviors have more self-efficacy in their ability to provide health counseling. Clergy with greater self-efficacy for health counseling also report a greater frequency of providing counseling. Of particular importance to my research is the potential for clergy to provide PA counseling, this it would be important to have a valid and reliable measure clergy PA counseling self-efficacy.

Self-efficacy is the confidence a person has in their ability to engage in a task. Its origins are rooted in Social Cognitive Theory. The basic assertion of this theory is that the more self-efficacy a person has for engaging in a task the more likely they are to actually do it. This theory also proposed that self-efficacy is task-specific, so that a person with self-efficacy for running may or may not have self-efficacy for swimming. Applied to counseling services, a person with self-efficacy for providing counseling services may be more likely to actually provide counseling services. And because counseling services can be broken down into several distinct dimensions,
any measure of counseling self-efficacy should be developed with the acknowledgment that self-efficacy for counseling services may not be universal, that is, a clergy member with self-efficacy for providing grief counseling may or may not have self-efficacy for providing nutrition counseling. The development of this measure has taken this latter point into consideration when selecting the items for inclusion in the measure. To the best of our knowledge there has yet to be a measure of self-efficacy for counseling, including PA counseling, developed for use with the clergy population. The development of such a scale will help researchers measure whether clergy possess confidence in their ability to provide PA counseling, as well as reveal things that may be related to a clergy members confidence in providing PA counseling (e.g., it may be that clergy who exercise more often are more confident in providing counseling on physical activity). This information could help to inform strategies used to promote health behaviors in faith-based organizations.

The rating document is on the next page. Please complete it and return it in the postage-paid envelope as soon as possible.
Rating Sheet #1:

The subscale (content) name is provided directly above the table. The item from the questionnaire is listed on the left. The relevance scale ranges from 1 = poor match to 5 = excellent match; as you are deciding these responses please consider whether the item has face validity (seems reasonable just by reading it).

All items will be presented to clergy using a 4-point Likert response scale with responses ranging from 1 = not true of me at all to 4 = completely true of me.

**Content: Self-efficacy for Having Time to Provide Counseling for Physical Activity**

<table>
<thead>
<tr>
<th>Item</th>
<th>(1) Poor Match</th>
<th>(2) Fair Match</th>
<th>(3) Good Match</th>
<th>(4) Very Good Match</th>
<th>(5) Excellent Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am confident that I…</td>
<td></td>
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<tr>
<td>a. …have time in my schedule to speak with a congregant about physical activity.</td>
<td></td>
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<tr>
<td>b. …could make time in my schedule to speak with a congregant about physical activity.</td>
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</tr>
</tbody>
</table>

Items that should be listed under a different content domain:

________________________________________________________________________

________________________________________________________________________

Items that should be added to Self-efficacy for Providing Counseling for Physical Activity:

________________________________________________________________________

________________________________________________________________________

Additional comments:

________________________________________________________________________

________________________________________________________________________
Rating Sheet #2:

The subscale (content) name is provided directly above the table. The item from the questionnaire is listed on the left. The relevance scale ranges from 1 = poor match to 5 = excellent match; as you are deciding these responses please consider whether the item has face validity (seems reasonable just by reading it).

All items will be presented to clergy using a 4-point Likert response scale with responses ranging from 1 = not true of me at all to 4 = completely true of me.

**Content: Self-efficacy for Preparedness to Provide Counseling for Physical Activity**

<table>
<thead>
<tr>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I am confident that I...</strong></td>
</tr>
<tr>
<td>c. …have adequate knowledge of physical activity.</td>
</tr>
<tr>
<td>d. …could help a congregant identify barriers to them becoming more physically active.</td>
</tr>
<tr>
<td>e. …could help a congregant develop goals for becoming more physically active.</td>
</tr>
<tr>
<td>f. …have adequate training/education on physical activity.</td>
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</tbody>
</table>

Items that should be listed under a different content domain:

________________________________________________________________________

________________________________________________________________________

Items that should be added to Self-efficacy for Providing Counseling for Physical Activity:

________________________________________________________________________

________________________________________________________________________

Additional comments:

________________________________________________________________________

________________________________________________________________________
Appendix B: Recruitment Materials for Scale Development Study
Dear Clergy Member:

My name is Ben Webb and I am a graduate student in the Department of Kinesiology at Penn State University. I am inviting you to participate in my research study to examine the counseling practices of clergy. You may participate if you are 18 years or older and serving as a member of the clergy in a faith-based organization.

As a participant, you will be asked to complete an online survey that will take approximately 10 minutes to complete. The survey will ask about your health, health habits, counseling practices, and your comfort-level with providing counseling to your congregants.

All information provided by you in the study will be kept confidential. If you would like to participate in this research study, simply click on the link below to complete the survey:

[Insert Survey Link]

If you have any questions you can contact me by calling 814-867-4277 or by emailing paphlab@psu.edu. You may also contact my advisor, Dr. Melissa Bopp, at 814-863-3467. You may OPT OUT of future mailings regarding this study by replying to this email or calling the number listed above.

Thank you for your consideration,

Ben Webb

Doctoral Student
Physical Activity and Public Health Lab
Pennsylvania State University
Dear Clergy Member:

Recently we contacted you about participating in a research study that will examine the counseling practices of clergy. If you have not done so already, please consider completing the 10-minute online survey by clicking on the link below:

[Insert Link Here]

Your responses will be kept confidential.

If you have any questions, please contact me by calling 814-867-4277 or by emailing paphlab@psu.edu. You may also contact my advisor, Dr. Melissa Bopp, at 814-863-3467. You may OPT OUT of future mailings regarding this study by replying to this email or calling the number listed above.

Thank you for your consideration,

Ben Webb

Doctoral Student
Physical Activity and Public Health Lab
Pennsylvania State University
Appendix C: PAR-Q
Physical Activity Readiness Questionnaire (PAR-Q) and You

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people. However, some people should check with their doctor before they start becoming much more physically active.

If you are planning to become much more physically active than you are now, start by answering the seven questions in the box below. If you are between the ages of 15 and 69, the PAR-Q will tell you if you should check with your doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly:

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
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</tbody>
</table>

If you answered YES to one or more questions:

Talk to your doctor by phone or in person BEFORE you start becoming much more physically active or BEFORE you have a fitness appraisal. Tell your doctor about the PAR-Q and which questions you answered YES.

- You may be able to do any activity you want – as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.
- Find out which community programs are safe and helpful for you.

If you answered NO to all questions:

If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can:
- Start becoming much more physically active – begin slowly and build up gradually. This is the safest and easiest way to go.
- Take part in a fitness appraisal – this is an excellent way to determine your basic fitness so that you can plan the best way for you to live actively.

Delay becoming much more active:

- If you are not feeling well because of a temporary illness such as a cold or a fever – wait until you feel better; or
- If you are or may be pregnant – talk to your doctor before you start becoming more active.

Please note: If your health changes so that you then answer YES to any of the above questions, tell your fitness or health professional. Ask whether you should change your physical activity plan.

Informed use of the PAR-Q: Reprinted from ACSM’s Health/Fitness Facility Standards and Guidelines, 1997 by American College of Sports Medicine
Appendix D: Recruitment Materials for Walking in Faith
Clergy Wanted for a Research Study

Purpose of the Study: The purpose of this research study is to determine the effectiveness of Walking in Faith, a 12-week internet-based physical activity program.

Eligibility: Must be at least 18 years old and currently be serving as a clergy member.

Compensation: Clergy will receive a small monetary incentive and pedometer for participating in the study. Participants will also receive personalized feedback about the results of the study.

Questions: For more information about this research, call Ben Webb at 814-867-4277 or email him at blw5236@psu.edu.

This research is being conducted by Benjamin Webb, under the direction of Dr. Melissa Bopp, in the Physical Activity and Public Health Lab at Pennsylvania State University.
Dear Clergy Member:

My name is Ben Webb and I am a graduate student in the Department of Kinesiology at Penn State University. I recently sent you a letter inviting you to participate in my research study to examine the effectiveness of Walking in Faith, a web-based physical activity program for clergy. You may participate if you are 18 years or older and serving as a member of the clergy in a faith-based organization.

As a participant, you will be asked to attend two different appointments where we will assess your blood pressure, measure your waist and hips, and measure your height and weight in a private location. We will also ask you to complete some surveys that ask about yourself, your current exercise and eating habits, and how you feel about exercise. These appointments should last approximately 30 minutes. Participation in the study would also require you to wear some physical activity monitors for a period of time. These monitors are painless to wear and you will receive instructions on how to use them. You may also be asked to complete one internet lesson a week for twelve weeks. The lessons are about physical activity and should take approximately 30 minutes to complete. After you complete the twelve internet lessons, you will be invited to complete the same measurements you did at the first appointment one more time.

You will receive a small financial incentive to participate in the study. You will also get to keep the pedometer you were given at the first appointment.

All information provided by you in the study will be kept confidential.

If you would like to participate in this research study, please contact me by calling 814-867-4277 or by emailing paplab@psu.edu. If you have questions about the study, please contact me or you may contact my advisor, Dr. Melissa Bopp, at 814-863-3467. You may OPT OUT of future mailings regarding this study by replying to this email or calling the number listed above.

Thank you for your consideration,

Ben Webb

Doctoral Student
Physical Activity and Public Health Lab
Pennsylvania State University
Dear Clergy Member:

This is the final invitation to participate in the Walking in Faith study at Penn State University. You may participate if you are 18 years or older and serving as a member of the clergy in a faith-based organization.

You will receive a small financial incentive to participate in the study. You will also get to keep the pedometer you will be given as part of the study.

If you would like to participate in this research study, please contact me by calling 814-867-4277 or by emailing paphlab@psu.edu. If you have questions about the study, please contact me or you may contact my advisor, Dr. Melissa Bopp, at 814-863-3467. You may OPT OUT of future mailings regarding this study by replying to this email or calling the number listed above.

Thank you for your consideration,

Ben Webb

Doctoral Student
Physical Activity and Public Health Lab
Pennsylvania State University
Appendix E: Community Healthy Activities Model Program for Seniors
This questionnaire is about activities that you may have done in the past 4 weeks. The questions on the following pages are similar to the example shown below.

INSTRUCTIONS

If you DID the activity in the past 4 weeks:

Step #1 Check the YES box.

Step #2 Think about how many TIMES a week you usually did it, and write your response in the space provided.

Step #3 Circle how many TOTAL HOURS in a typical week you did the activity.

If you DID NOT do the activity:

Check the NO box and move to the next question
<table>
<thead>
<tr>
<th>Question</th>
<th>YES/NO Options</th>
<th>TIMES a week?</th>
<th>TOTAL hours a week did you usually do it?</th>
<th>Less than 1 hour</th>
<th>1-2½ hours</th>
<th>3-4½ hours</th>
<th>5-6½ hours</th>
<th>7-8½ hours</th>
<th>9 or more hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Play golf, carrying or pulling your equipment (count walking time only)?</td>
<td>YES: How many TIMES a week? ______</td>
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<td>14. Play singles tennis (do not count doubles)?</td>
<td>YES: How many TIMES a week? ______</td>
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<td>15. Play doubles tennis (do not count singles)?</td>
<td>YES: How many TIMES a week? ______</td>
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<td>16. Skate (ice, roller, in-line)?</td>
<td>YES: How many TIMES a week? ______</td>
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<tr>
<td>19. Do heavy work around the house (such as washing windows, cleaning gutters)?</td>
<td>YES: How many TIMES a week? ______</td>
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<tr>
<td>20. Do light work around the house (such as sweeping or vacuuming)?</td>
<td>YES: How many TIMES a week? ______</td>
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</tbody>
</table>
### 21. Do heavy gardening (such as spading, raking)?
- **YES** How many TIMES a week?_____
- **NO**

<table>
<thead>
<tr>
<th>How many TOTAL hours a week did you usually do it?</th>
<th>Less than 1 hour</th>
<th>1-2½ hours</th>
<th>3-4½ hours</th>
<th>5-6½ hours</th>
<th>7-8½ hours</th>
<th>9 or more hours</th>
</tr>
</thead>
</table>

### 22. Do light gardening (such as watering plants)?
- **YES** How many TIMES a week?_____
- **NO**

<table>
<thead>
<tr>
<th>How many TOTAL hours a week did you usually do it?</th>
<th>Less than 1 hour</th>
<th>1-2½ hours</th>
<th>3-4½ hours</th>
<th>5-6½ hours</th>
<th>7-8½ hours</th>
<th>9 or more hours</th>
</tr>
</thead>
</table>

**Please note:** For the following questions about running and walking, include use of a treadmill.

### 24. Jog or run?
- **YES** How many TIMES a week?_____
- **NO**

<table>
<thead>
<tr>
<th>How many TOTAL hours a week did you usually do it?</th>
<th>Less than 1 hour</th>
<th>1-2½ hours</th>
<th>3-4½ hours</th>
<th>5-6½ hours</th>
<th>7-8½ hours</th>
<th>9 or more hours</th>
</tr>
</thead>
</table>

### 25. Walk uphill or hike uphill (count only uphill part)?
- **YES** How many TIMES a week?_____
- **NO**

<table>
<thead>
<tr>
<th>How many TOTAL hours a week did you usually do it?</th>
<th>Less than 1 hour</th>
<th>1-2½ hours</th>
<th>3-4½ hours</th>
<th>5-6½ hours</th>
<th>7-8½ hours</th>
<th>9 or more hours</th>
</tr>
</thead>
</table>

### 26. Walk fast or briskly for exercise (do not count walking leisurely or uphill)?
- **YES** How many TIMES a week?_____
- **NO**

<table>
<thead>
<tr>
<th>How many TOTAL hours a week did you usually do it?</th>
<th>Less than 1 hour</th>
<th>1-2½ hours</th>
<th>3-4½ hours</th>
<th>5-6½ hours</th>
<th>7-8½ hours</th>
<th>9 or more hours</th>
</tr>
</thead>
</table>

### 27. Walk to do errands (such as to/from a store or to take children to school (count walk time only)?
- **YES** How many TIMES a week?_____
- **NO**

<table>
<thead>
<tr>
<th>How many TOTAL hours a week did you usually do it?</th>
<th>Less than 1 hour</th>
<th>1-2½ hours</th>
<th>3-4½ hours</th>
<th>5-6½ hours</th>
<th>7-8½ hours</th>
<th>9 or more hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question</td>
<td>Response</td>
<td>How many TIMES a week?</td>
<td>How many TOTAL hours a week did you usually do it?</td>
<td>Less than 1 hour</td>
<td>1-2½ hours</td>
<td>3-4½ hours</td>
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<tr>
<td>28. Walk leisurely for exercise or pleasure?</td>
<td>YES</td>
<td>1-2½ hours</td>
<td>3-4½ hours</td>
<td>5-6½ hours</td>
<td>7-8½ hours</td>
<td>9 or more hours</td>
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<td>NO</td>
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<tr>
<td>29. Ride a bicycle or stationary cycle?</td>
<td>YES</td>
<td>1-2½ hours</td>
<td>3-4½ hours</td>
<td>5-6½ hours</td>
<td>7-8½ hours</td>
<td>9 or more hours</td>
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<tr>
<td>30. Do other aerobic machines such as rowing, or step machines</td>
<td>YES</td>
<td>1-2½ hours</td>
<td>3-4½ hours</td>
<td>5-6½ hours</td>
<td>7-8½ hours</td>
<td>9 or more hours</td>
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<tr>
<td>(do not count treadmill or stationary cycle)?</td>
<td>NO</td>
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<tr>
<td>31. Do water exercises (do not count other swimming)?</td>
<td>YES</td>
<td>1-2½ hours</td>
<td>3-4½ hours</td>
<td>5-6½ hours</td>
<td>7-8½ hours</td>
<td>9 or more hours</td>
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<tr>
<td>32. Swim moderately or fast?</td>
<td>YES</td>
<td>1-2½ hours</td>
<td>3-4½ hours</td>
<td>5-6½ hours</td>
<td>7-8½ hours</td>
<td>9 or more hours</td>
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<tr>
<td>33. Swim gently?</td>
<td>YES</td>
<td>1-2½ hours</td>
<td>3-4½ hours</td>
<td>5-6½ hours</td>
<td>7-8½ hours</td>
<td>9 or more hours</td>
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<td>34. Do stretching or flexibility exercises (do not count yoga or Tai-chi)</td>
<td>YES</td>
<td>1-2½ hours</td>
<td>3-4½ hours</td>
<td>5-6½ hours</td>
<td>7-8½ hours</td>
<td>9 or more hours</td>
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<tr>
<td>Question</td>
<td>YES</td>
<td>NO</td>
<td>How many TIMES a week?</td>
<td>How many TOTAL hours a week did you usually do it?</td>
<td>Less than 1 hour</td>
<td>1-2½ hours</td>
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<td>35. Do yoga or Tai-chi?</td>
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<td><strong>YES</strong></td>
<td>How many TIMES a week?</td>
<td>How many TOTAL hours a week did you usually do it?</td>
<td>Less than 1 hour</td>
<td>1-2½ hours</td>
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<td>36. Do aerobics or aerobic dancing?</td>
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<td><strong>YES</strong></td>
<td>How many TIMES a week?</td>
<td>How many TOTAL hours a week did you usually do it?</td>
<td>Less than 1 hour</td>
<td>1-2½ hours</td>
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<td>5-6½ hours</td>
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<tr>
<td>37. Do moderate to heavy strength training (such as hand-held weights of more than 5 lbs., weight machines, or push-ups)?</td>
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<tr>
<td><strong>YES</strong></td>
<td>How many TIMES a week?</td>
<td>How many TOTAL hours a week did you usually do it?</td>
<td>Less than 1 hour</td>
<td>1-2½ hours</td>
<td>3-4½ hours</td>
<td>5-6½ hours</td>
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<tr>
<td>38. Do light strength training (such as hand-held weights of 5 lbs. or less or elastic bands)?</td>
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<tr>
<td><strong>YES</strong></td>
<td>How many TIMES a week?</td>
<td>How many TOTAL hours a week did you usually do it?</td>
<td>Less than 1 hour</td>
<td>1-2½ hours</td>
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<td>5-6½ hours</td>
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<tr>
<td>39. Do general conditioning exercises, such as light calisthenics or chair exercises (do not count strength training)?</td>
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<tr>
<td><strong>YES</strong></td>
<td>How many TIMES a week?</td>
<td>How many TOTAL hours a week did you usually do it?</td>
<td>Less than 1 hour</td>
<td>1-2½ hours</td>
<td>3-4½ hours</td>
<td>5-6½ hours</td>
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<td>40. Play basketball, soccer, or racquetball (do not count time on sidelines)?</td>
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<td></td>
</tr>
<tr>
<td><strong>YES</strong></td>
<td>How many TIMES a week?</td>
<td>How many TOTAL hours a week did you usually do it?</td>
<td>Less than 1 hour</td>
<td>1-2½ hours</td>
<td>3-4½ hours</td>
<td>5-6½ hours</td>
</tr>
<tr>
<td><strong>NO</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix F: Physical Activity Monitor Wear Logs
**Meter Log**

Wear the accelerometer for 7 consecutive days. In the table below, write down the dates and days you wear the meter. Record the times you put it on and took it off, including if it was a.m. or p.m. We have included extra rows for recording when you put it on and took it off in case you have to take it off and put it back on during the day (e.g., showering). Be sure to note why you took it off on the log. Here is a sample of what a day might look like:

<table>
<thead>
<tr>
<th>Date: January 25, 2013</th>
<th>Day: Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ON</strong></td>
<td><strong>OFF</strong></td>
</tr>
<tr>
<td>7:30 am</td>
<td>12:45 pm</td>
</tr>
<tr>
<td>swimming</td>
<td></td>
</tr>
<tr>
<td>1:30 pm</td>
<td>10:30 pm</td>
</tr>
<tr>
<td>bedtime</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day:</td>
<td>Day:</td>
<td>Day:</td>
<td>Day:</td>
<td>Day:</td>
<td>Day:</td>
<td>Day:</td>
</tr>
<tr>
<td><strong>ON</strong></td>
<td><strong>OFF</strong></td>
<td><strong>ON</strong></td>
<td><strong>OFF</strong></td>
<td><strong>ON</strong></td>
<td><strong>OFF</strong></td>
<td><strong>ON</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Office Use Only

Serial #: ___________________

Date Initialized: _____________

Participant ID: _____________  Valid Days: _________
# Walking in Faith

**Pedometer Log**

1. Put your pedometer on each morning. Make sure it is secure and level on your waistband.
2. Record the number of steps displayed on your pedometer at the end of the day before you go to bed...
3. Important: Please save this log as a record of your steps. You will return it at the end of the study.

### Example

<table>
<thead>
<tr>
<th>Week</th>
<th>Goal</th>
<th>Mon</th>
<th>Tues</th>
<th>Wed</th>
<th>Thurs</th>
<th>Fri</th>
<th>Sat</th>
<th>Sun</th>
<th>Total</th>
<th>Avg/Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>3500</td>
<td>2950</td>
<td>3475</td>
<td>4236</td>
<td>3856</td>
<td>4125</td>
<td>2109</td>
<td>24251</td>
<td>3464</td>
</tr>
<tr>
<td>2</td>
<td>3964</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table

<table>
<thead>
<tr>
<th>Week</th>
<th>Goal</th>
<th>Mon</th>
<th>Tues</th>
<th>Wed</th>
<th>Thurs</th>
<th>Fri</th>
<th>Sat</th>
<th>Sun</th>
<th>Total</th>
<th>Avg/Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td></td>
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<tr>
<td>3</td>
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<td></td>
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<tr>
<td>4</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Goal** = Average number of steps/day from previous week plus 500 steps.
Appendix G: Psychosocial Measures for Walking in Faith
EXERCISE CONFIDENCE SURVEY

Below is a list of things people might do while trying to increase or continue regular exercise. We are interested in exercises like running, swimming, brisk walking, bicycle riding, or aerobics classes.

Whether you exercise or not, please rate how confident you are that you could really motivate yourself to do things like these consistently, for at least six months.

<table>
<thead>
<tr>
<th>Question</th>
<th>I know I cannot</th>
<th>Maybe I can</th>
<th>I know I can</th>
<th>Does not apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. Get up early, even on weekends, to exercise.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22. Stick to your exercise program after a long, tiring day at work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>23. Exercise even though you are feeling depressed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>24. Set aside time for a physical activity program; that is, walking,</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>jogging, swimming, biking, or other continuous activities for at least</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 minutes, 3 times per week.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. Continue to exercise with others even though they seem too fast or</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>too slow for you.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Stick to your exercise program when undergoing a stressful life</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>change (e.g., divorce, death in the family, moving).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. Attend a party only after exercising.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>28. Stick to your exercise program when your family is demanding more</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>time from you.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. Stick to your exercise program when you have household chores to</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>attend to.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. Stick to your exercise program even when you have excessive</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>demands at work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. Stick to your exercise program when social obligations are very</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>time consuming.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. Read or study less in order to exercise more.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Outcome Expectations for Exercise

INSTRUCTIONS: The following items reflect your beliefs or expectations about the benefits of regular exercise or physical activity. Please respond to the following statements marking your answer honestly and by circling the appropriate number/statement. Remember to read each question carefully.

EXAMPLE:

Q) Exercise will:

1) Exercise will improve my ability to perform daily activities:

2) Exercise will improve my social standing:

3) Exercise will improve my overall body functioning:

4) Exercise will help manage stress:
5) **Exercise will strengthen my bones:**

- 1 STRONGLY DISAGREE
- 2 DISAGREE
- 3 NEUTRAL
- 4 AGREE
- 5 STRONGLY AGREE

6) **Exercise will improve my mood:**

- 1 STRONGLY DISAGREE
- 2 DISAGREE
- 3 NEUTRAL
- 4 AGREE
- 5 STRONGLY AGREE

7) **Exercise will increase my muscle strength:**

- 1 STRONGLY DISAGREE
- 2 DISAGREE
- 3 NEUTRAL
- 4 AGREE
- 5 STRONGLY AGREE

8) **Exercise will make me more at ease with people:**

- 1 STRONGLY DISAGREE
- 2 DISAGREE
- 3 NEUTRAL
- 4 AGREE
- 5 STRONGLY AGREE

9) **Exercise will aid in weight control:**

- 1 STRONGLY DISAGREE
- 2 DISAGREE
- 3 NEUTRAL
- 4 AGREE
- 5 STRONGLY AGREE

10) **Exercise will improve my psychological state:**

- 1 STRONGLY DISAGREE
- 2 DISAGREE
- 3 NEUTRAL
- 4 AGREE
- 5 STRONGLY AGREE
11) **Exercise will provide companionship:**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRONGLY DISAGREE</td>
<td>DISAGREE</td>
<td>NEUTRAL</td>
<td>AGREE</td>
<td>STRONGLY AGREE</td>
</tr>
</tbody>
</table>

12) **Exercise will improve the functioning of my cardiovascular system:**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRONGLY DISAGREE</td>
<td>DISAGREE</td>
<td>NEUTRAL</td>
<td>AGREE</td>
<td>STRONGLY AGREE</td>
</tr>
</tbody>
</table>

13) **Exercise will increase my mental alertness:**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRONGLY DISAGREE</td>
<td>DISAGREE</td>
<td>NEUTRAL</td>
<td>AGREE</td>
<td>STRONGLY AGREE</td>
</tr>
</tbody>
</table>

14) **Exercise will increase my acceptance by others:**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRONGLY DISAGREE</td>
<td>DISAGREE</td>
<td>NEUTRAL</td>
<td>AGREE</td>
<td>STRONGLY AGREE</td>
</tr>
</tbody>
</table>

15) **Exercise will give me a sense of personal accomplishment:**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRONGLY DISAGREE</td>
<td>DISAGREE</td>
<td>NEUTRAL</td>
<td>AGREE</td>
<td>STRONGLY AGREE</td>
</tr>
</tbody>
</table>

16) **Exercise will improve my ability to carry out tasks associated with the ministry:**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRONGLY DISAGREE</td>
<td>DISAGREE</td>
<td>NEUTRAL</td>
<td>AGREE</td>
<td>STRONGLY AGREE</td>
</tr>
</tbody>
</table>

17) **Exercise will help me be a role model to my congregation (social sub-**
Self-Regulation for Exercise Questionnaire

Please indicate how often you use the following strategies.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Never</th>
<th>Rarely</th>
<th>Occasionally</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charting amount of physical activity</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Asking a friend to be physically active</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Attempting to get friends to be active instead of sedentary</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Posting cues for physical activity</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Rewarding self for being active</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Do things to make physical activity more enjoyable</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Schedule physical activity into daily plan</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Help others be physically active</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Set physical activity goals</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Set aside a special time to be active</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Praise self for doing physical activity</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Think about the benefits of being active</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Choose convenient activities</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Say positive things to self about physical activity</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
SOCIAL SUPPORT AND EXERCISE SURVEY

Below is a list of things people might do or say to someone who is trying to exercise regularly. If you are not trying to exercise, then some of the questions may not apply to you, but please read and give an answer to every question.

Please rate each question twice. Under family, rate how often anyone living in your household has said or done what is described during the last three months. Under friends, rate how often your friends, acquaintances, or coworkers have said or done what is described during the last three months.

Please write one number from the following rating scale in each space:

<table>
<thead>
<tr>
<th>none</th>
<th>rarely</th>
<th>a few times</th>
<th>often</th>
<th>very often</th>
<th>does not apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

During the past three months, my family (or members of my household) or friends:

11. Exercised with me.  

12. Offered to exercise with me.  

13. Gave me helpful reminders to exercise ("Are you going to exercise tonight?").  

14. Gave me encouragement to stick with my exercise program.  

15. Changed their schedule so we could exercise together.  

16. Discussed exercise with me.  

17. Complained about the time I spend exercising.  

18. Criticized me or made fun of me for exercising.  

19. Gave me rewards for exercising (bought me something or gave me something I like).  

20. Planned for exercise on recreational outings.  

21. Helped plan activities around my exercise.  

22. Asked me for ideas on how they can get more exercise.  

23. Talked about how much they like to exercise.
Clergy Physical Activity Counseling Self-Efficacy Scale

Indicate whether you think the following statements are true or not true about your confidence in providing counseling to your congregants about physical activity. Physical activity is any bodily movement that requires energy above what is needed when resting. Raking leaves and exercise are both forms of physical activity.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all true</th>
<th>Hardly true</th>
<th>Moderately true</th>
<th>Exactly true</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have time to discuss the topic of physical activity with a congregant</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I could make time to speak to a congregant about physical activity</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I have adequate knowledge of physical activity</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I could help a congregant identify things that may keep them from being active</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I could help a congregant develop goals and strategies to help them become more active</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I have adequate education on the topic of physical activity</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Appendix H: Recruitment Materials for Focus Group Discussions
Focus Group Discussion

**Topic:** The Role of the Church in Health Promotion

**When:** [insert date and time]

**Where:** [insert church name]

**Who:** Anyone 18+ years old who regularly attends worship services at [church name] and who is not employed as a pastor at the church.

Space is limited to six participants, so please let contact us ASAP if you wish to participate.

Participants will receive a $25 Visa gift card for participating in the study.

For more information about the study or to see if you qualify to participate, please contact the principle investigator, Ben Webb, at 814-867-4277 or blw5236@psu.
Please copy and paste the following message into your weekly bulletin and/or email listserv:

Penn State Seeking Research Volunteers

The Physical Activity and Public Health Lab at Penn State University is seeking individuals that attend our church to participate in a focus group discussion about the role of the church in health promotion. The focus group discussion will be held at our church on [insert date and time] and will last approximately 60-90 minutes. To participate in the study you must be 18 years or older, be a regular attendee of our church, and cannot be employed by the church. Participants will receive a $25 VISA gift card for participating in the study. If you want to learn more about the study, please contact the principal investigator, Ben Webb, at 814-867-4277 or blw52365@psu.edu.
Appendix I: Moderator Guide
Walking in Faith Focus Group Discussion

Moderator Guide

Good afternoon and welcome to our session. Thanks for taking the time to join us to talk about the topic of health promotion in the church. My name is Jackie Maher and assisting me is Ben Webb, the Principal Investigator for this study. We're both with the Department of Kinesiology at Penn State University. We wanted to get your opinions on the role of clergy and the church in promoting the health of their congregations. We are having discussions like this with several churches throughout the area.

You were invited because you reported that you were a regular attendee of your church, which has hopefully given you time to develop an opinion about this topic.

There are no wrong answers but rather differing points of view. Please feel free to share your point of view even if it differs from what others have said. Keep in mind that we're just as interested in negative comments as positive comments, and at times the negative comments are the most helpful.

You may notice the audio recorder on the table. As explained before, we're audio recording the session because we don't want to miss any of your comments. People often say very helpful things in these discussions and we can't write fast enough to get them all down. We will be on a first name basis tonight, and we won't use any names in our reports. Also, we will not be sharing the audio recordings or transcripts of this discussion with your pastor or any other person not authorized to review the materials, so you can be assured of complete confidentiality. The audio recordings of the discussion will go back to Penn State University where we will write up our findings.

If you need to use the restroom or leave to take a call you may do so, but please return as soon as possible. If you have any concerns you would like addressed as the discussion proceeds, simply ask us to pause the audio recorder until the matter is settled to your satisfaction. If there aren't any questions at this time, let's go ahead and get started. We've placed name cards on the table in front of you to help us remember each other's names. Let's find out some more about each other by going around the table. Tell us your name and how long you have been attending services here at [church name].
Topical questions (after introductions):

1. What roles does the church play in communities?
   a. Clarifier (if needed): Some people may define church as the entire body of believers, while others may think more about the local church they attend. Encourage them to discuss it from either or both points of view if it comes up.
   b. Add on: Think back over your time attending church. Can you think of some examples of ministries or programs the church has offered to the community?

2. What role does the church play in your life, and your families if that applies?
   a. Clarifier (if needed): In this case, we want them to think not only about the church in general, but also about the local church they attend services at.
   b. Add On: As you reflect on your time attending church, can you think of some examples of ministries or programs your church has for its congregants?
   c. Add On: What things would you like to see the church do more of in terms of meeting the needs of the congregation?

3. What kind of roles do clergy have in the church? By clergy, we mean pastors.
   a. Clarifier (if needed): Here, we again want them to think not only about the church in general, but their local church as well.

4. More related to our topic, what do you think about the link between faith and health?
   a. Clarifier (if needed): Some people refer to this as the connection between mind, body, and spirit.
   b. Add On (if anyone says there is no link and doesn’t explain their opinion): For those who do not believe there is a link, could you explain a little more your reasons for that?

5. What kind of a role can or does the church play in your health or your family’s health, if that applies? The health of your community?
   a. Add On: Is it appropriate for the church to address health issues?

6. What role do clergy play in promoting health in your church and in your communities?
   a. Clarifier: Remind them that health includes physical health matters (chronic disease, body weight, diet, and exercise), mental health, and spiritual health.
7. What are some things your clergy has said or done in the last year or so to help promote health or healthy behaviors?
   a. Add On: Are there things that your clergy could do more of to promote health and healthy behaviors?

8. How could clergy influence your health or the way you think about health and health behaviors?
   a. Clarifier: If they are unsure what you mean, ask them if there is anything their clergy could do to influence their own personal health, health beliefs, and health behaviors such as diet and exercise.

Ending Question

9. Suppose you had a few minutes to talk to your pastor about their role in health promotion in the church, our topic of the day. What would you say?

Final Question

10. Do you think that we missed anything in our discussion that you would like to share?
VITA

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EDUCATION


M.S. in Kinesiology, College of Arts and Sciences, Kansas State University, Manhattan, KS 66506.

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ACADEMIC POSITIONS AND EXPERIENCE

Assistant Professor, Department of Kinesiology and Health Education, School of Education, Southern Illinois University Edwardsville, Edwardsville, IL. 2014.

Graduate Teaching Assistant, Department of Kinesiology, College of Health and Human Development, The Pennsylvania State University, University Park, PA. Fall 2010 – spring 2014.

Graduate Lecturer, Department of Kinesiology, College of Health and Human Development, The Pennsylvania State University, University Park, PA. Summer 2011 and summer 2012.

Graduate Teaching Assistant, Department of Kinesiology, College of Arts and Sciences, Kansas State University, Manhattan, KS. Spring 2006 – spring 2008.

HONORS AND AWARDS

• American Public Health Association- Physical Activity Section Student Research Poster Award (2013)
• American College of Sports Medicine Foundation - Plus One Active Research Grant on Wellness (2012)
• Nina M. Browning Memorial Scholarship (2010)