

THE RELATIONSHIP BETWEEN FAITH-BASED SUPPORT AND PHYSICAL ACTIVITY
LEVELS AMONG AFRICAN AMERICAN WOMEN IN FAITH COMMUNITIES

by

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Abstract

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Physical inactivity is the fourth leading risk factor for death worldwide, and is a major contributor for a number of chronic diseases such as obesity, type 2 diabetes, hypertension, and cancer in the United States (CDC, 2014; World Health Organization, 2010). This public health problem is more prevalent among African American women who have been diagnosed with chronic health conditions and live sedentary lifestyles. Therefore, identifying strategies that contribute to improving physical activity levels are warranted for this population. The purpose of this study was to examine the relationship between participation in faith-based groups and physical activity levels among African American women in faith communities.

The Health Promotion Model was used as the theoretical framework to explore how motivational significance of physical and psychosocial variables influence health behavioral outcomes. A descriptive correlational design was conducted using a convenience sample of 115 African American women 21 – 64 years of age. The participants were recruited from eight predominantly African American faith communities located in north-central Texas. Demographics, health conditions, and health promoting physical activity data were collected at baseline. Then participants were instructed to record their faith-based group participation and pedometer readings on a daily tracking

record over a 14 consecutive day study period. Data were then collected at the end of the study period.

Bivariate analyses using the Pearson Product-Moment Correlation Coefficient, revealed a significant association between participation in faith-based groups $r(79) = .282, p = .011$ and pedometer readings. Correlational findings using the Spearman's Rank Correlation Coefficient revealed faith-based support approached statistical significance $r_s(79) = .215, p = .053$ with pedometer readings. Education $r_s(112) = .252, p = .007$ and income $r_s(109) = .285, p = .002$ were significantly associated with the health promoting physical activity subscale mean scores of the Health Promoting Lifestyle Profile II questionnaire. Health promoting physical activity scores were significantly and negatively associated $r_s(115) = -.299, p = .001$ with current health conditions.

Examining the impact of social and cultural approaches to physical activity participation would contribute to the current body of knowledge, and identify strategies that contribute to improving health promoting physical activity practices. The implications for the study revealed that inadequate progression has been made to improve physical activity levels in African American women, and that future research is warranted for exploring increased physical activity participation and decreased attrition rates in at risk populations.

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Chapter 1

Introduction

African American women (AAW) are less active than their White counterparts and have an increased risk of chronic diseases related to physical inactivity such as high blood pressure or type 2 diabetes (Institute of Medicine of the National Academies, 2007; Office of Minority Health, 2008). As a result, the morbidity and mortality rates associated with physical inactivity continue to rise in this population, and discovering the most effective methods for sustaining physical activity over time would be beneficial. However, there are few studies regarding the sustainability of physical activity participation in this population.

Identifying health values and beliefs of AAW might be a key to understanding their behaviors and practices concerning physical activity outcomes. Although AAW in faith-based groups share their sanctity and spiritual beliefs, some also seek support for social, emotional, financial, and/or health-related issues (Wilcox et al., 2010). For this reason, the church has been identified not only as a place where AAW can worship, but also a place where their holistic needs can be met. Therefore, conducting a research study using a descriptive correlational design to examine the relationship between faith-based support and physical activity would contribute to the current body of knowledge concerning sedentary behavior and participation issues in AAW.

In this chapter, the background and significance are discussed regarding morbidity and mortality rates associated with physical inactivity as well as faith-based support and physical activity outcomes among AAW. Lastly, an overview of the research problem, theoretical framework, study purpose, research question, assumptions, and chapter summary are specified.

Background and Significance

Escalated morbidity and mortality rates in chronic health conditions in the United States are primarily due to four modifiable risk factors: (1) tobacco use, (2) poor eating habits, (3) excessive alcohol intake, and (4) a lack of physical activity (Centers for Disease Control and Prevention [CDC], 2010). The same risk factors are true for AAW (Ford, Kim, & Dancy, 2009; Webb & Gonzalez, 2006).

In 2011, the CDC (2012a) reported that 55.2% of African Americans 18 years and older were physically inactive compared to 44.1% of Whites, and only 18% of African Americans reported participating in regular physical activity compared to 23% of Whites (American Heart Association, 2013; CDC, 2012a). During that same year, 45.8% of AAW were physically inactive compared to 28.3% of White women in the U.S. (CDC, 2012a).

Physical inactivity is strongly correlated with chronic health conditions such as heart disease, type 2 diabetes, end-stage renal disease, and stroke (U.S. Department of Health and Human Services [USDHHS], 2008). African Americans have higher morbidity rates than any other ethnic group, and more chronic illnesses related to physical inactivity compared to White Americans (CDC, 2013a; Institute of Medicine of the National Academies, 2007). African American women who were less active were more likely to be obese with a body mass index (BMI) ≥ 30 kg/m², and have higher mortality rates due to high blood pressure, stroke, and/or type 2 diabetes compared to other minority groups (CDC, 2011a; CDC, 2013a).

In Texas, adults who were physically inactive had a significantly higher prevalence of cardiovascular disease (CVD), high blood pressure, high cholesterol, type 2 diabetes, or obesity compared to individuals who were more active (Center for Health Statistics, 2012). Additionally, the morbidity and mortality rates for CVD in Texans were

higher among African Americans compared to other minority populations (Texas Council on Cardiovascular Disease and Stroke, 2010).

African American women in Texas have also been diagnosed with chronic illnesses attributable to physical inactivity. In 2011, the Texas Department of State Health Services (TDSHS) (2013) reported increased prevalence rates in chronic health conditions and physical inactivity in AAW compared to White women. As a result, health outcomes continued to decline as more AAW maintained sedentary lifestyles (TDSHS, 2013).

Physical Activity

Regular physical activity improves muscle strength, endurance, weight loss, and cognitive function. However, to achieve better health benefits adults 18 – 64 years old “should do at least 150 minutes of moderately-intense (e.g. brisk walking), 75 minutes of vigorously-intense (e.g. running), or an equivalent combination of moderately and vigorously-intense aerobic activity weekly” (USDHHS, 2008, p. 5). Furthermore, individuals who regularly participated in physical activity had less stress and lower blood pressure readings (Wilcox et al., 2010).

The Agency for Healthcare Research and Quality (2010) reported that individuals who were deficient in attaining adequate health promotion practices (e.g. maintaining an active lifestyle) experienced poor health outcomes. Also, the consequences of maintaining a sedentary lifestyle tend to be unevenly distributed among this population of women mainly due to social factors including health beliefs, values, and practices (Webb & Gonzalez, 2006).

Faith-based Support

For this study, faith-based support is defined as the perception that emotional (including scripture and/or prayer) needs of an individual are provided by a member (or

members) of a group affiliated with a place of worship (Bopp, Wilcox, Laken, & McClorin, 2009a; Wilcox et al., 2010). In the African American community, the church has been identified as a source of social support and influence for many AAW (Campbell et al., 2007). African American women in faith-based groups share similar perspectives and values regarding Biblical principles about their bodies being a temple unto the Lord. Faith-based support has been identified as positively influencing physical activity behaviors (Campbell et al., 2007). Thomas and colleagues (2009) discovered that AAW tended to engage in healthy behaviors if they had a supportive partner. Additionally, other researchers discovered that positive relationships exist between faith-based support and health promoting behaviors (Debnam, Holt, Clark, Roth, & Southward, 2012; Wilcox et al., 2010).

African American women were found to be more actively engaged in physical activity if they were members of a group where weekly scripture readings and prayer was emphasized (Bopp et al., 2009a; Duru, Sarkisian, Leng, & Mangione, 2010; Wilcox et al., 2010). These women reported during prayer and scripture times they were able to discuss obstacles limiting their physical activity, and provide support to each other when they experienced feelings of distress and/or defeat. Faith-based fellowship is a resource that congregants can depend on when they are going through stressful times (Chaney, 2008). In comparison, Debnam et al. (2012) reported that AAW who received religious support increased their physical activity level.

Research Problem

The prevalence rates for chronic health conditions associated with sedentary behavior are higher in AAW compared to White women, and without lifestyle modifications disability and/or death could follow (Institute of Medicine of the National Academies, 2007). More research studies are needed concerning social and cultural

approaches for promoting increased physical activity in minority populations, particularly in younger AAW who are at risk for developing chronic diseases. Therefore, examining the relationship between the participation in faith-based support and physical activity are warranted for reducing the growing epidemic of behavioral risk factors associated with chronic health conditions in this population.

Theoretical Framework

The Health Promotion Model (HPM) was chosen as the theoretical framework because the model illustrates how motivational significance of physical and psychosocial variables influence health behavioral outcomes. The original HPM, proposed by Pender in 1982, was revised in 1996 due to new theoretical developments and research findings (Pender, Murdaugh, & Parsons, 2011). The HPM posits that an individual's positive or negative experiences directly influence health promoting behaviors. The theoretical underpinnings of the model were derived from the expectancy-value theory which proposes that an individual's motivation to achieve a specific behavioral outcome is based on his or her subjective value. Additionally, the foundation of the HPM was derived from the social cognitive theory which proposes the connection between cognitive, behavioral, and environmental influences on human behavior (Bandura, 1986; Feather, 1982).

The HPM (1996) illustrates how the motivational significance of physical (e.g. physical activity) and psychosocial (e.g. faith-based support) variables influence health behavioral outcomes (Airhihenbuwa & Liburd, 2006; Nagel & Sgoutas-Emch, 2007). The African American church serves as a resource of support to the community; therefore, an association could potentially exist between faith-based support and physical activity participation among this population of interest.

Theoretical Components and Relevance to Study

Prior related behavior and personal factors are the basis to understanding health promoting behavior. The key components of the model focus on individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcomes (See Figure 1.1) (Pender et al., 2011).

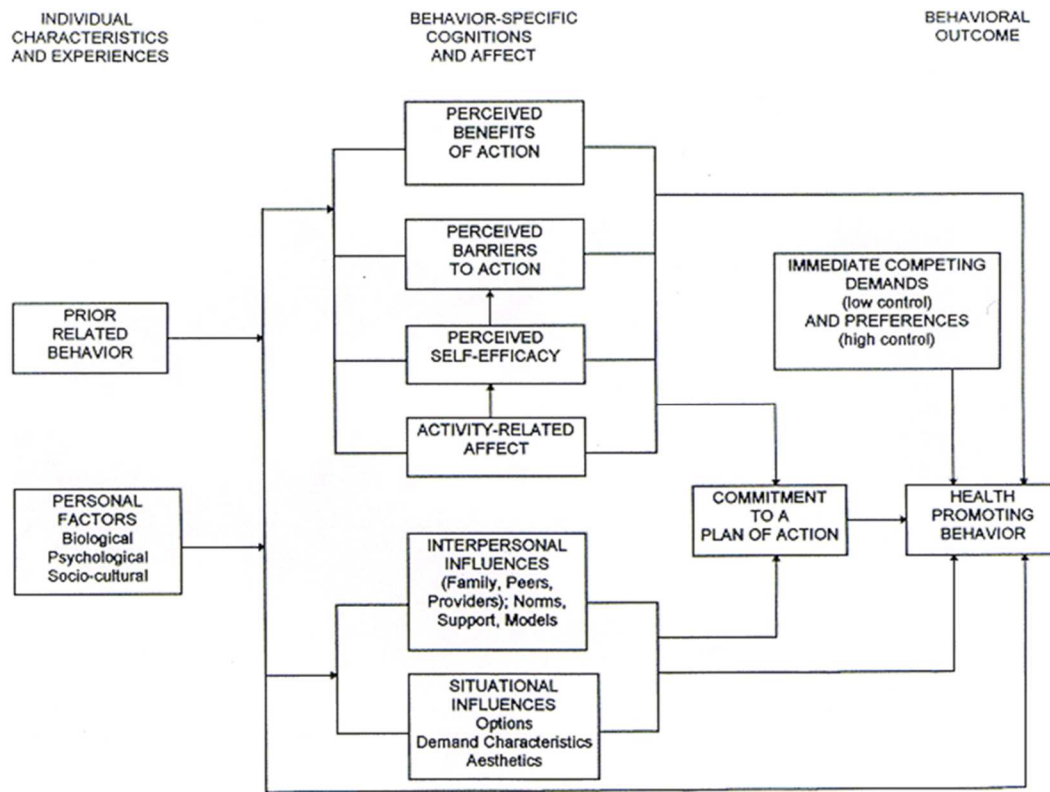


Figure 1.1 Pender Health Promotion Model 1996

Individual Characteristics and Experiences

Individual characteristics and experiences are past behaviors and personal factors (e.g. age, ethnicity, and socioeconomic status) that influence health behaviors (Pender et al., 2011). This component of the model is relevant to the study by identifying health behaviors and/or personal characteristics that may affect the desired outcome.

For example, elderly AAW may not choose to participate in physical activity because of health limitations (e.g. knee injuries or respiratory problems) compared to elderly AAW without physical limitations.

Behavior-specific Cognitions and Affect

The behavior-specific cognitions and affect are the “perceived benefits of action, perceived barriers to action, perceived self-efficacy, activity-related affect, interpersonal influences, situational influences, commitment to a plan of action, and immediate competing demands and preferences” (Pender et al., 2011, p. 46). This component is relevant to the study because the model could potentially depict association(s) between enhanced self-esteem, social support, and/or modified health behavior (Waite, Hawks, & Gast, 1999). For example, an African American woman is 5’3” and weighs 198 lbs and does not believe she has the stamina to complete an eight week walking program. However, after receiving weekly encouragement and support from members of her Bible study class, she decides to participate.

Behavioral Outcomes

Behavioral outcomes are desired results an individual anticipates after committing to a specific plan of action (Pender et al., 2011). The success in attaining a specified behavior outcome can be based on a number of factors (physical and/or psychosocial). This component of the model is relevant to the study because perceived barriers could prevent an individual from committing to the desired health behavior over time (Pender et al., 2011). Exploring perceived barriers as well as interpersonal support could provide data that are potentially significant to the study findings. For example, a single mother with three young children has been participating in a faith-based exercise program for the past six months. She has been committed to the program and would like to continue, but the program director recently discontinued all childcare services due to

the lack of volunteers. If the single mother perceives this situation to be a barrier, she may not choose to continue with the program.

Theoretical Propositions

The theoretical propositions are based on health promoting behaviors influenced by perceptions, affect, interpersonal, and situational influences. The model illustrates that individuals will engage in health behaviors if they perceive the activities to be beneficial to them. If individuals believe they are capable of achieving healthy behaviors, they will commit to a healthy lifestyle. Also, an enhanced positive attitude and interpersonal support of family, friends, and health care providers will lead to greater commitments to maintaining healthy behaviors. If individuals are committed to an outlined plan of action they will maintain health promoting behaviors. In contrast, perceived barriers (e.g. unanticipated circumstances) will prevent individuals from committing to healthy behaviors and a healthy lifestyle (Pender, et al., 2011).

Application of Theory

The theory was a good fit for this research because the components of the model depicted that perception of actions (e.g. benefits, barriers, and self-efficacy), interpersonal, and situational factors influence an individual's plan to commit to health promoting behavior. Therefore, the theory was used in the study to examine the relationship of interpersonal factors on physical activity participation in AAW. Additionally, this theoretical framework was appropriate for examining which factors (perceptions and/or situations) had the greatest influence on achieving and sustaining increased physical activity behaviors in this study population.

Purpose

The purpose of this study was to examine the relationship between participation in faith-based groups and physical activity levels among AAW in faith communities. The

specific objectives were to examine the relationships between faith-based support, demographic variables, physical activity levels, and the health promoting behavior of physical activity.

Research Questions

The research questions for this study were:

1. What are the relationships between participation in faith-based groups and physical activity levels among African American women in faith communities?
2. What are the relationships between demographic variables and the health promoting behavior of physical activity among African American women in faith communities?

Assumptions

The assumptions for this study were:

1. AAW with higher physical activity levels will have fewer chronic health conditions.
2. AAW participating in multiple faith-based groups or activities will have higher physical activity levels.
3. AAW receiving more faith-based support will have high levels of physical activity.
4. AAW without physical, social, and/or economic barriers will have higher physical activity levels.

Chapter Summary

In conclusion, the church has been a major source of support for many AAW through prayer, scripture references on faith, and words of encouragement. African American women participating in church groups often discuss their personal health goals, barriers, and accountability to physical activity. African American women with

accountability partners within the faith community were more likely to maintain healthy behaviors compared to women who were not held accountable for their lifestyle practices. Therefore, receiving support from church members could potentially influence health behavior and/or lifestyle modifications in this population of interest.

Researchers have reported that minority populations who actively engage in physical activity have better health outcomes. Regardless, inadequate progression has been made to improve physical activity levels of AAW who continue to succumb from life-threatening illnesses associated with sedentary lifestyles. Examining the relationship between faith-based support and physical activity levels in AAW would potentially advance nursing knowledge concerning the impact of social and cultural approaches to physical activity participation in this ethnic group.

Chapter 2

Review of Literature

Physical activity reduces the risk for heart disease, colon cancer, stroke, type 2 diabetes, excess weight, and osteoporosis (CDC, 2012b). Compared to White women, AAW have higher mortality and morbidity rates related to physical inactivity (Centers for Disease Control and Prevention [CDC], 2013a; Institute of Medicine of the National Academies, 2007). In spite of the development of physical activity initiatives and programs, AAW continue to succumb to chronic health conditions related to sedentary behaviors. Therefore, more research is needed to improve existing strategies with regards to increasing physical activity levels in this population. In this chapter, an overview of the significance and background pertaining to the problem of physical inactivity are reviewed. Physical activity interventions and strategies, faith-based group participation, gaps in knowledge, and a summary of the chapter are also discussed.

Significance

Public Health Problem

Physical inactivity is the fourth leading risk factor for death worldwide and a major predictor for a number of chronic diseases such as obesity, type 2 diabetes, hypertension, and cancer in the U.S. (CDC, 2014a; World Health Organization, 2010). Over the years, numerous public health efforts have been implemented to promote better practices regarding sedentary behaviors. Regardless of these efforts, physical inactivity trends consistently show minimal improvements in increasing activity levels in adults (Office of Surveillance, Epidemiology, and Laboratory Services, 2009; Durstine, Gordon, Wang, & Luo, 2013).

Prevalence and Trends Data

From 2007–2009, there was a 2.8% decrease in physical inactivity among adults, and females reported being more physically active compared to males (Office of Surveillance, Epidemiology, and Laboratory Services, 2009) (See Table 2.1). In the same time period, African Americans reported being more active than Whites and Hispanics. However, only about half (55%) of the African American population responded to the physical activity survey, and the completion rate compared to other ethnic groups could account for the percentage differences (Office of Surveillance, Epidemiology, and Laboratory Services, 2009).

Table 2.1 Prevalence and Trends 2007 – 2009 Physical Activity Data

	2007	2009	
<i>30 minutes or more of moderate physical activity five or more days per week</i>			
Physical Activity			% Difference
Yes	49.2	50.6	2.8
No	50.8	49.4	– 2.8
Gender			
Male	48.5	46.7	– 3.7
Female	52.9	51.7	– 2.3
Ethnicity			
White	48.3	47.9	– 0.83
African American	58.7	57.2	– 2.6
Hispanic	55.6	53.6	– 3.6

Source: Office of Surveillance, Epidemiology, and Laboratory Services, 2009

From 2008–2010, 53.9% of all adults were inactive and failed to meet the 2008 federal guidelines for aerobic physical activity (National Center for Health Statistics, 2013). Almost half (48.4%) of the U.S. population was inactive in 2011, and over 70% did not participate in enough aerobic and muscle strengthening exercises to meet the U.S. physical activity guidelines (See Table 2.2). Prevalence and trends data of 2011 showed that males were more active than females in aerobic and muscle strengthening

activity, while African Americans and Hispanics were less active than Whites regarding aerobic activity. However, there were only marginal differences among these ethnic groups regarding a combination of aerobic and muscle strengthening physical activity (See Table 2.2) (Office of Surveillance, Epidemiology, and Laboratory Services, 2011). In 2012, the national average for physical inactivity continued to increase to 52% (CDC, 2014a).

Table 2.2 Prevalence and Trends 2011 Physical Activity Data

Physical Activity	Yes	No
Aerobic		
U.S. Population	51.6	48.4
Male	53.0	47.0
Female	49.9	50.2
White	54.1	45.9
African American	46.4	53.6
Hispanic	44.4	55.6
Muscle Strengthening		
U.S. Population	29.6	70.4
Male	33.3	66.7
Female	24.7	75.3
White	29.3	70.8
African American	31.9	68.3
Hispanic	28.5	71.5
Aerobic and Muscle Strengthening		
U.S. Population	20.9	79.1
Male	22.9	77.1
Female	17.9	82.1
White	21.0	79.1
African American	21.2	78.9
Hispanic	18.8	82.0

Source: Office of Surveillance, Epidemiology, and Laboratory Services, 2011

In 2010, 58.4% of AAW were physically inactive compared to 45.1% of White women in the U.S. (Remington & Brownson, 2011). AAW who are physically inactive compared to other ethnic groups have higher prevalence rates of chronic health conditions. Therefore, lifestyle modifications are warranted, particularly in younger AAW, to prevent premature disability and/or death in this ethnic group (Institute of Medicine of the National Academies, 2007; National Center for Health Statistics, 2013).

Morbidity/Mortality Rates and Physical Inactivity

Chronic disease has had an impact on the number of deaths occurring in the U.S. annually, mostly due to health problems associated with insufficient physical activity (Durstine, Gordon, Wang, & Luo, 2013; Carlson, Fulton, Schoenborn, & Loustalot, 2010; USDHHS, 2008). The leading causes of morbidity and mortality rates are attributable to chronic diseases such as cardiovascular disease, uncontrolled hypertension, type 2 diabetes, end-stage renal disease, and stroke. Empirical evidence supports that adults who fail to maintain an active lifestyle as recommended by the national physical activity guidelines tend to have an increased risk for premature deaths (CDC, 2013a; CDC, 2013b; USDHHS, 2008).

In 2011, the highest mortality rates were among African Americans at 903.9 per 100,000 compared to Whites at 753.9 per 100,000 (CDC, 2013a). African Americans have a greater probability of dying from stroke and end-stage kidney disease (1.8 and 4.2 times greater consecutively) compared to Whites (American Heart Association, 2012). However, increased physical activity patterns, even in small quantities, are associated with reduced morbidity and mortality rates in both men and women (Kokkinos, 2012; USDHHS, 2008).

According to the CDC (2014b), the leading cause of death for 2010 in African American and White men was heart disease (24.1% and 25.1% respectively) and cancer

in Hispanic (20.7%) men. During that same year, AAW and White women had higher mortality rates with cardiovascular disease, 24.1% and 23.5% respectively, compared to Hispanic women where the leading cause of death was cancer at 22.6% (CDC, 2013c).

With a death rate of 761.7 per 100,000 in AAW compared to 644.3 per 100,000 in White women in 2011, the life expectancy for AAW for subsequent years was the lowest among other ethnic groups (CDC, 2013a). However, the potential for decreasing mortality rates in AAW is more likely to take place if major risk factors such as physical inactivity are reduced.

Economic Impact and Physical Inactivity

Health care costs for chronic diseases in the U.S. can be linked to health risks related to the lack of physical activity. The average health care expenditures during 2010 – 2012 were approximately 280 billion dollars for heart disease, stroke, and diabetes alone. Of this amount, 184 billion dollars were direct medical costs and the indirect costs (including work absences and/or lack of work productivity) were approximately 96 billion dollars (CDC, 2014c). Consequently, innovative primary prevention initiatives are warranted not only for reducing annual medical care costs, but for decreasing the probability of chronic disease development in high risk populations like younger AAW.

Background

Recommended Guidelines for Physical Activity

The 2008 Physical Activity Guidelines for Americans were developed based on empirical evidence that supports the benefits of physical activity regarding risk factor reduction and disease prevention. The federal government's physical activity recommendations specify that adults 18 – 64 years old should engage in at least 150 minutes of moderate, 75 minutes of vigorously aerobic physical activity, or a combination

of both to be considered physically active (USDHHS, 2008). For additional health benefits, the USDHHS (2008) recommends to include muscle and/or bone strengthening physical activity at least three days per week.

Physical Activity

Physical activity is classified into four levels: inactive (no activity beyond baseline activity), low (<150 minutes/week), medium (150 – 300 minutes/week), and high (>300 minutes/week). Physical inactivity is defined as very short episodes (≤ 10 minutes) of lightly, moderately, or vigorously-intense physical activity (e.g. standing, lifting light objects, or climbing a few stairs) that does not produce any health benefits of daily living (USDHHS, 2008). For the purposes of this study, physical activity was defined as any activity (including but not limited to walking, jogging, or aerobic exercises) generating at least 9,500 steps a day (or a total of 47,500 – 66,500 steps weekly) (USDHHS, 2008). Additionally, physical activity levels will be classified as low (47,500 – 56,999 steps/week), medium (57,000 – 66,499 steps/week), and high ($\geq 66,500$ steps/week).

Rates of Physical Activity

Rates of physical activity differ by ethnicity (See Table 2.3). Based on the 2008 U.S. Physical Activity Guidelines for Americans, more Whites participated in 150 minutes or more of aerobic physical activity per week compared to African Americans and Hispanics. In contrast, a larger percentage of African Americans participated in muscle strengthening exercises more than twice per week when compared to Whites and Hispanics. Aerobic and muscle strengthening exercises among these ethnic groups were relatively the same (Office of Surveillance, Epidemiology, and Laboratory Services, 2011).

Although the USDHHS have specified physical activity recommendations for achieving quality health outcomes, African Americans (including AAW) have not upheld

or sustained these health standards. However, understanding and following trends and patterns of demographic data could aid in the development of quality physical activity initiatives for African American females. Demographic characteristics such as age, marital status, education level, and economic status provide significant data concerning health behaviors such as physical activity. See Table 2.3 regarding physical activity guidelines data 2010 – 2012 (National Center for Health Statistics, 2014; National Center for Health Statistics, 2013).

Table 2.3 Physical Activity Data 2010 – 2012

Characteristic	Aerobic	Muscle Strengthening	Aerobic and Muscle Strengthening
Ethnicity*			
African Americans	46.0	36.0	21.1
Whites	54.0	29.2	21.0
Hispanics	44.3	28.5	18.9
Age**			
18 – 44	56.1	28.6	25.7
45 – 64	46.9	20.7	17.2
≥ 65	37.5	16.1	11.9
Marital Status***			
Never Married	25.0	24.4	20.6
Married	27.4	22.1	18.8
Divorced or Separated	24.7	21.2	17.3
Widowed	21.4	17.0	14.5
Education**			
< High School	31.5	10.0	7.6
High School Graduate	38.8	16.1	12.4
Some College or more	56.7	28.5	24.9
Poverty Level**			
100% Below	36.8	14.3	11.6
100% – 199%	40.2	18.1	14.5
200% – 399%	49.1	21.9	18.8
400% or more	60.9	32.9	29.4

Sources: * Office of Surveillance, Epidemiology, and Laboratory Services, 2011

** National Center for Health Statistics, 2013

*** National Center for Health Statistics, 2014

Barriers to Physical Activity

Although there are many benefits to being physically active, many Americans continue to lead sedentary lifestyles (USDHHS, 2008). There are many reasons why adults are inactive, but barriers (or what adults perceive to be barriers) are primarily why most adults are not successful in achieving or maintaining recommended physical activity standards. Researchers have identified that some of these barriers are due to personal (including age and chronic diseases), socioeconomic, and/or environmental factors (Anderson & Pullen, 2013; Ford, Kim, & Dancy, 2009; Webb & Gonzalez, 2006; Wilson, Kirtland, Ainsworth, & Addy, 2004).

Personal Factors

A lack of time, motivation, and convenience has been documented as barriers that prevent adults from attaining physical activity goals (Anderson & Pullen; Whitt-Glover, Hogan, Lang, & Heil, 2008). For example, some individuals may feel they do not have any time to engage in more physical activity because of busy work and/or personal schedules. Then individuals become less motivated and more physically inactive. Low self-efficacy, fear of physical injury, or a lack of support may also contribute to some adults feeling powerless in maintaining physically active lifestyles (Anderson & Pullen, 2013; Bopp et al., 2009a; Whitt-Glover et al., 2008).

Similar personal factors exist in AAW. Peterson (2011) found that among AAW, family needs often took precedence over their own physical health needs. Webb and Gonzalez (2006) conducted a qualitative study with 47 AAW regarding risk factors, preventive measures, and psychological stress related to developing a chronic disease such as hypertension. The researchers found that AAW reported emotional stress and time constraints to be associated with unhealthy behaviors such as an increased consumption of fast food, smoking, and physical inactivity. Consistent with these study

findings, Ford, Kim, and Dancy (2009) conducted seven Talking Circles (focus groups) with AAW (n=25), and found these participants engaged in “poor” health behaviors such as eating fatty diets and maintaining sedentary lifestyles because of feeling tired and busy schedules.

Barriers to physical activity and age. Adults make up a large portion of the U.S. population, and as they get older inactive behaviors increase. The United States Census Bureau [USCB] (2014) estimated the population for adults 65 years and older will reach over 83 million by 2050, and the USDHHS (2008) reported that physical activity levels decline as adults get older regardless of gender or ethnicity. Therefore, age could also be considered a barrier regarding active versus inactive behaviors in adults. For example, Anderson and Pullen (2013) and Duru et al., (2010) implemented faith-based physical activity interventions using randomized study designs with AAW 60 years of age or older, and found at baseline the participants were less active and did not voluntarily engage in physical activity. However, post-intervention the participants were more active (Anderson & Pullen, 2013) and systolic blood pressure was improved (Duru et al., 2010).

Barriers to physical activity and chronic diseases. Individuals may not be able to engage in an active lifestyle because of physical impairments associated with chronic diseases. Chronic health conditions (i.e. hypertension and depression) have been well documented with regards to sedentary behaviors (Anderson & Pullen, 2013; Bopp et al., 2009b; Ford, Kim, & Dancy, 2009; Whitt-Glover, Taylor, Heath, & Macera, 2007). Anderson and Pullen (2013) reported AAW who were sedentary and had more perceived barriers regarding functional ability at baseline improved in their physical activity after the intervention compared to women with less chronic illnesses and barriers.

Physical functioning related barriers can also lead to feelings of anxiety or even uncertainty about engaging in any level of physical activity beyond their baseline.

Anderson and Pullen (2013) found that AAW with limited physical functioning felt challenged performing muscle-strengthening and endurance physical activities. Also, older AAW with chronic health conditions reported physical insecurities which prevented them from becoming more active (Anderson & Pullen, 2013).

Socioeconomic Factors

Physical activity differs among socioeconomic populations. Adults of higher income groups tend to participate in higher levels of physical activity compared to adults of lower socioeconomic status. In contrast, low income groups face many barriers concerning better health benefits and achieving increased physical activity levels (Pampel, Krueger, & Denney, 2010). People who live in poverty tend to have increased rates of physical inactivity compared to people of higher socioeconomic status (USDHHS, 2008). Reasons for this poor behavior in low income populations could possibly be due to unavailable childcare, unaffordable exercise facilities, a lack of transportation, and social influences (Wilson et al., 2004).

More African Americans live in low socioeconomic areas compared to other ethnic groups and tend to live more sedentary lifestyles. Wilson et al. (2004) conducted a study using a stratified random design with respondents from the south, and reported that 66.5% of African Americans compared to 33.5% of Whites were of lower socioeconomic status and physically inactive. Majority of the African Americans who were inactive tended to be AAW 30-44 years old (30.1%) with at least a high school education. In 2011, approximately 47% of AAW earned less income (\$25,000 – \$49,999 per year), and 26.5% AAW between 18 and 64 years old lived below poverty level (USCB, 2012). As a result, younger African American females have higher prevalence rates of chronic disease (USDHHS, 2008), and are more likely to face numerous challenges that limit their ability to participate in physical activity.

Environmental Factors

Physical activity rates may possibly be elevated in low income areas due to the absence of walking/jogging trails, sidewalks, and exercise facilities. In addition, the lack of safe neighborhoods serves as a barrier to maintaining recommended physical activity goals. Ford and colleagues (2009) reported that low income communities lack the convenience of walking trails, well-lit sidewalks, and fitness facilities, and that AAW who reported living in unsafe neighborhoods stated fear prevented them from maintaining an active lifestyle. Residents of poor communities reported that high crime neighborhoods, unattended dogs, and limited access to recreation facilities were environmental factors that influenced their physical activity participation (Wilson et al., 2004). Likewise, community solutions are warranted in lower socioeconomic areas because of higher incidence rates of chronic health conditions in people residing in these settings.

African American women living in low income communities, especially women residing in high crime areas, do not have the same exercise opportunities as women living in higher income neighborhoods where exercise facilities are available and accessible. A plethora of research has confirmed that AAW of lower socioeconomic status were more likely to participate in an exercise regimen if the facility was easily accessible or closer to where they live (Bopp et al., 2009a; Duru et al., 2010; Ford et al., 2009; Whitt-Glover et al., 2008).

These barriers to physical activity participation align with the theory of health promotion proposed by Pender, which posits that personal (e.g. age, aerobic capacity, and strength), sociocultural (e.g. socioeconomic status), and situational factors (e.g. accessibility to exercise facility) are predictive of health behavioral outcomes (Pender, Murdaugh, & Parsons, 2011). Barriers are motives which cause the individual to delay or avoid engaging in healthy lifestyle practices. If individuals perceive there are physical

limitations or lack of motivation to participate in a health program, they will not commit to an outlined plan of action.

Identifying personal, socioeconomic, and environmental barriers are important for developing innovative public health initiatives. Barriers related to age and physical functioning continues to be a challenge, and the lack of physical activity in low socioeconomic groups can lead to complicated health issues and ultimately chronic diseases. African American women are faced with many of these barriers; therefore, culturally tailored physical activity strategies would be more favorable to promoting improved physical activity levels in this population.

Benefits to Physical Activity

Personal Benefits

There are numerous benefits to maintaining an active lifestyle. Some personal factors include improvements in physical appearance and increased energy level. Individuals who regularly engage in physical activity have a tendency to feel good about their active lifestyle, especially when personal health goals are sustained over time. Also, individuals may have more confidence and self-esteem if they are able to maintain their physical activity goals. Additionally, AAW have similar experiences with personal benefits such as increased incentive and motivation related to achieving physical activity goals. For example, Anderson and Pullen (2013) reported that older, sedentary AAW (n=11) receiving an intervention with spiritual strategies were more motivated and physically active compared to the control group (n=16). However, the results may not be generalizable to other AAW because of the small sample size, and the duration of the intervention (12 weeks).

Health Benefits

Improvements in weight control, mental health, blood pressure readings, and muscle and bone strengthening are some health benefits of physical activity. Physical activity reduces the risk of cardiovascular disease, type 2 diabetes, some cancers, and prevents falls in older adults (USDHHS, 2008). A review by Warburton, Nicol, and Bredin (2006) reported that physical activity contributes to primary and secondary prevention of chronic disease such as cardiovascular-related death, type 2 diabetes, cancer (particularly colon and breast cancer), and osteoporosis. In comparison, Kokkinos (2012) reported a reduction in chronic health conditions among men and women who engaged in more physical activity.

Financial Benefits

Increasingly health care expenditures related to chronic diseases are becoming more of an economic issue among adults in the U.S., especially for those who fail to meet the U.S. physical activity recommendations for better health benefits (CDC, 2014c; USDHHS, 2008). African American women tend to have lower rates of physical activity, and higher medical management costs associated with chronic health conditions (CDC, 2014c). However, researchers have reported that health care costs are more likely to decline if health risk factors such as physical inactivity are reduced (USDHHS, 2008). Even though management of chronic disease tends to be costly in this population, financial benefits would be more feasible with increased physical activity and other lifestyle modifications (CDC, 2014c; USDHHS, 2008).

Physical Activity Programs

Interventions and Health Outcomes

The U.S. Physical Activity Guidelines of 2008 were implemented to encourage physical activity among the U.S. population (USDHHS, 2008), and physical activity

programs have been initiated to improve health outcomes. Even though health promotion efforts have been made to increase physical activity in adults, challenges continue to persist. Many researchers have explored different variables such as attitudes, perceptions, and/or relationships concerning physical activity in order to develop interventions or strategies that promote better health behaviors in adults (Anderson & Pullen, 2013; Bopp et al., 2009a; Whitt-Glover et al., 2008; Wilson et al., 2004).

Physical activity initiatives have shown measureable improvements in minority populations over time. National Health and Nutrition Examination Survey data from 1999 – 2004, the Behavioral Risk Factor Surveillance System 2003 data, and the 2004 National Health Interview Survey data were stratified by gender, age, education, income, employment status, BMI, and region of the country. The datasets were analyzed separately, and the researchers reported that physical activity increased from 24% to 36% in African American adults (Whitt-Glover, Taylor, Heath, & Macera, 2007). Likewise, Miles, Kruger, Liao, Carlson, and Fulton (2011) analyzed retrospective data from 2002 to 2005 of the CDC's community initiative called Racial and Ethnic Approaches to Community Health (REACH), found that any walking (≥ 10 minutes/week) increased from 68.3% in 2002 to 72.6% in 2005 ($p < 0.01$), regular walking (≥ 30 minutes/day X 5 days/week) increased from 22.9% in 2002 to 26.7% in 2005 ($p < 0.01$), and minutes walked increased from 126 to 150 minutes/week ($p < 0.01$).

Faith-based Physical Activity Programs

Interventions and Health Outcomes

Faith-based physical activity programs have contributed to better health outcomes in all populations. Although there are numerous physical activity programs, some faith-based strategies have been implemented specifically for improving health

outcomes among African Americans. Franklin, Schlundt, and Wallston (2008) referenced the African American church as a promising venue for promoting healthier behaviors.

Faith-based programs have been known to heighten health awareness and improve health outcomes among church members as well as the surrounding community. Whitt-Glover and colleagues (2012) and Wilcox and colleagues (2010) implemented faith-based interventions with AAW from different church communities, and the outcomes were increased steps, vigorous exercise daily, a reduction in fat intake, and improved blood pressure readings. However, longer durations of observation would be necessary for determining if faith-based interventions (or programs) could sustain physical activity outcomes over time.

Whitt-Glover and colleagues (2008) found that after a 12 week faith-based physical activity program, sedentary AAW 20 – 83 years old (n=87) were moderately and vigorously more active per week (increased by 67 ± 78 minutes and 44 ± 66 minutes per week respectively), and walked more per day (1373 ± 728 steps or a 28% increase) compared to baseline data. Anderson and Pullen (2013), Duru and colleagues (2010), and Wilcox and colleagues (2010) found similar results in which sedentary AAW (60 years and older) increased their muscle strength and physical activity level to moderate-intensity as well as increased their weekly steps, total physical activity, and had a decrease in their systolic and diastolic blood pressure.

In contrast, Bopp and colleagues (2009a) found there was no significant relationship between church group participation and moderate or vigorous walking in adults 65 years and older (n=571). Whitt-Glover and colleagues (2008) also found there were no significant differences in systolic or diastolic blood pressure in older AAW. Small sample size and the lack of a comparison (or control) group were major limitations to this

study. Therefore, the research findings may not be generalizable to other AAW because of the aforementioned limitations.

Exposing AAW to behavioral strategies with a faith-based component can be influential in changing their health practices regarding physical activity (Duru et al., 2010). Positive reinforcement from church members participating in faith-based physical activity interventions builds self-efficacy for physical activity (Duru et al., 2010). Therefore, faith-based physical activity interventions such as being encouraged through prayer may prove to be effective in decreasing sedentary lifestyles in this population (Anderson & Pullen, 2013; Ford, Kim, & Dancy, 2009; Duru et al., 2010; Whitt-Glover, 2008).

A supportive church network, pastoral support, and the consistency of program objectives with church philosophy have been identified as factors that result in successful faith-based programs (Duru et al., 2010; Whitt-Glover et al., 2008). Wilcox and colleagues (2010) reported faith-based programs that offered training for church staff in faith-based interventions were more likely to have sustainable outcomes. They found that church members who led these health initiatives were more effective in increasing physical activity participation in the African American church.

African American women have been known to join faith-based physical activity programs, and even become role models for other church members. However, recruitment, participation, and attrition rates continue to be a challenge. Wilcox and colleagues (2010) found that maintaining sustainability of faith-based programs over time were associated with periodically interchanging health behavior strategies.

Faith-based Support and Physical Activity

Interpersonal Relationships

The Pew Forum on Religion and Public Life (2008) reported that most African Americans were affiliated with a formal religion, and that religion was an important aspect

of their lives. Faith communities consist of an array of ministries in which individuals can acquire assistance and guidance, making social networks an integral part of the organization's infrastructure. Individuals who are members of and/or participate in church ministries (i.e. Bible study group) often develop interpersonal relationships that lean towards becoming more personal over time. Researchers have found people who shared similar beliefs or some type of connection personally would often engage in similar activities (i.e. health related activities) (Greif & Sharpe, 2010; Harvey & Alexander, 2012).

Faith-based Support

African American women are more likely to commit to a healthier lifestyle if their efforts are supported and valued. The church serves as a source of support for many AAW and faith-based support has been identified as positively influencing physical activity behaviors (Anderson & Pullen, 2013; Campbell et al., 2007; Wilcox et al., 2010). Thomas and colleagues (2009) discovered that AAW tended to engage in healthy behaviors if they had a supportive partner.

Wilcox and colleagues (2010) found that support from the health director and other congregants of faith-based programs encouraged AAW to modify their health behavior. Furthermore, Wilcox and colleagues (2010) used community-based participatory research to examine the social and cultural context of the African American population, and discovered that when church leadership was involved congregants were more actively engaged in the physical activity program. Anderson and Pullen (2013) reported similar findings when AAW received positive reinforcement from the Faith Community Nurse. The nurse motivated them to increase their physical activity, and to continue to uphold their commitment to a higher power by remembering to honor their bodies because the body is a temple unto their higher power.

A faith community is a potential source of motivation for health behavior change in AAW since the African American church is regarded as a place of refuge, prayer, and support (Wilcox et al., 2010). African American women receiving social support express feelings of self-worth, and are more likely to be physically active compared to women who do not have sufficient social support (Small, Taft, & Brown, 2011). Chaney (2008) found that church congregants perceived spiritual guidance, hope, and social support to be factors that were most beneficial to them.

Physical Activity Outcomes

While participating in a faith-based program, 24% of AAW who did not receive interpersonal support failed to meet the 2008 U. S. Physical Activity Guidelines (Chaney, 2008). Additionally, participants who did not have an interest in exercise were not committed to physical activity regimens (Bopp et al., 2009a). Whitt-Glover, Goldman, Karanja, Heil, and Gizlice (2012) developed an intervention called the Learning and Developing Individual Exercise Skills (LADIES) for Better Health and found this program to be a successful strategy regarding social support and physical functioning in AAW.

Not all researchers have found the same positive results concerning physical activity outcomes among AAW receiving faith-based support. Holt, Schulz, Williams, Clark, and Wang (2012), and Baruth and colleagues (2013), reported that social capital (or church support) among AAW did not predict physical functioning. In other words, there was no association between the variables (faith-based support and physical activity). Failure to examine differences in perceived barriers, chronic illnesses, physical limitations, or church attendance could account for these inconsistent study findings. The research outcomes differ from the findings of the aforementioned studies, and do not align with the health promotion theoretical framework.

Health promotion theory posits that an enhanced positive attitude and interpersonal support of friends (e.g. faith-based groups) will lead to greater commitments to maintaining healthy behaviors. If individuals are committed to an outlined plan of action they will more than likely maintain health promoting behaviors (Pender et al., 2011). Adams, Bowden, Humphrey, and McAdams (2000) conducted a study among rural women (n=400) regarding the relationship between social support and health promotion lifestyle. Multiple regression analyses revealed there was a significant relationship between levels of education, social support, and health promotion lifestyles among this population. The effect size of the study (R²) was .579, indicating that the predictors accounted for 57.9% of the variance in health promotion lifestyles.

In another study, Peterson and Cheng (2011) reported that social support for physical activity increased among obese AAW (n=18) participating in a church-based physical activity intervention program. Social support was measured using the Social Support Exercise Scale and scores increased from 24.18 to 33.71, $t(16) = 4.83$, $p < .05$, in 6 weeks. Physical activity was measured via participation in the Heart and Soul Physical Activity Program (exercise intervention). Similarly, social support was a significant predictor that accounted for 55.1% of the variance in health promoting behaviors (Ballard, 2009). Thomas et al. (2009) reported that an increase in social support via church affiliations provided motivation for weight loss among obese AAW.

Harvey and Alexander (2012) and Bopp and colleagues (2009b) examined the effects of social support on health behaviors over time. Social support and structural measures of social relationships (i.e. marital status, church attendance), social network size (i.e. the number of close friends), and functional measures (i.e. emotional, informational, or instrumental support) may influence perceived social support. In contrast, Komar-Samardzija and colleagues (2012) reported the correlation among

family/friend social support and physical activity frequency/caloric expenditure to be low, meaning there was no relationship between the participants social network of family/friends and physical activity outcomes.

Gaps in Knowledge

The African American church has influenced the lives of many AAW both physically and socially. However, there are challenges regarding sustainability of physical activity programs in African American faith communities. More research is needed in the areas of recruitment, participation and sustainability concerning physical activity programs in this population. For example, strategies are needed to retain participants beyond 8 – 12 weeks of a physical activity program, and to encourage physical activity outside of group exercise sessions.

Examining levels of motivation in AAW receiving faith-based support might provide a better understanding of their participation in physical activity. African American women in faith-based groups may have considerable differences regarding health perceptions, values, and self-efficacy compared to other ethnic populations, and among themselves. Specific differences between AAW need further exploration (i.e. younger versus older AAW). Therefore, examining the spiritual and cultural context of this population may be warranted regarding the recruitment, participation, and sustainability of physical activity programs in faith-based settings. Also, longitudinal studies may prove to be beneficial regarding active versus inactive behaviors that persist over time in this population.

Faith communities vary regarding philosophy, beliefs, and culture. There were few studies that specifically pertained to faith-based support with regards to participation and sustainability issues in faith communities. For example, is prayer, scripture, or accountability between members more predictive of sustained group attendance?

Therefore, understanding the culture within church groups and the organization could provide significant information to program success and sustainability.

Faith-based physical activity programs that are culturally and spiritually designed to meet the needs of the congregation have better outcomes (Bopp et al., 2009a). For this reason, more interventional studies are warranted concerning faith-based support for developing culturally tailored programs in faith communities. Evaluating physical activity programs in faith-based settings for a better fit may increase physical activity participation in AAW.

Most studies have been conducted with sedentary AAW who were 60 years of age or older. Although significant findings were discovered pertaining to physical inactivity, older AAW often reported more problems with physical limitations related to pain, chronic health conditions, or other disabilities. Research studies are needed with younger AAW who have an increased risk for developing chronic illnesses related to physical inactivity and ultimately dying prematurely.

Even though physical activity initiatives have been developed to improve health outcomes in all communities, however, more studies regarding interpersonal support and physical activity levels in faith communities may prove to be beneficial in promoting increased physical activity in younger AAW.

Chapter Summary

In this chapter, the significance, background, and statistical data pertaining to physical inactivity was reviewed. Faith-based and general physical interventions (or strategies), interpersonal relationships (social networks) in faith communities, gaps in knowledge were also discussed. From the literature review, AAW were found to be more sedentary compared with White women, and developed more chronic health conditions such as cardiovascular disease, stroke, and type 2 diabetes compared to other ethnic

groups. Therefore, understanding common barriers to physical activity and creating strategies to overcome them may help AAW make physical activity part of their daily lives. However, challenges persist among AAW living in low income areas that do not have the same exercise opportunities as women living in higher income neighborhoods where exercise facilities are available and accessible.

The church has been known to be a major source of support and social networks with similar character and values could potentially effect health behavior and/or lifestyle modifications. African American women participating in church groups often discussed their personal health goals, barriers, and accountability to physical activity, those with accountability partners were more likely to maintain healthy behaviors compared to women who were not held accountable for their lifestyle practices

Some researchers found that AAW who actively engage in physical activity have better physical outcomes such as improved blood pressure readings. In spite of these findings, challenges persist concerning the sustainability of physical activity in this population. Examining the relationship between the participation in faith-based groups and physical activity levels among AAW in faith communities could potentially enhance nursing knowledge concerning social interaction and physical activity behavior among this ethnic group.

Chapter 3

Methods and Procedures

This chapter includes the methods and procedures used to examine the relationships between participation in faith-based groups, demographics, physical activity levels, and the health promoting behavior of physical activity (as specified in the Health Promoting Lifestyle Profile II questionnaire) among AAW in faith communities. In this chapter, the research design, study sample, setting, data collection methods, procedures, and plan for data analyses are described. Ethical considerations and the delimitations of the study are also discussed.

Research Design

A descriptive correlational design was used in this study. Advantages of using this research design include no differential loss between groups and no participant assignment bias because there was only one group used for this study (Hulley, Cummings, Browner, Grady, & Newman, 2007). Using this type design was seen as potentially leading to substantial conclusions about the relationships between two or more variables (faith-based support and demographics) and prospective outcomes (physical activity levels and health promoting behavior) (Wood & Ross-Kerr, 2011). This was a non-experimental design, and some disadvantages included the inability to justify causality because there was no evidence that one variable would cause the response of another variable (Gliner, Morgan, & Leech, 2009).

A correlation indicates that a relationship exists and not causation. A descriptive correlational design was appropriate for this study because the relationship among two or more variables in the sample were described, and the magnitude of the correlation coefficient was used to determine the strength of the correlation between the variables

faith-based support, demographics, physical activity levels, and health promoting behavior in AAW (Komar-Samardzija, Braun, Keithley, & Quinn, 2012).

Study Variables

The study variables included faith-based support, demographics, physical activity, and the health promoting behavior of physical activity as specified in the Health Promoting Lifestyle Profile II questionnaire (See Table 3.1).

Table 3.1 Conceptual and Operational Definitions of Study Variables

Study Variables	Conceptual Definition	Operational Definition
Faith-based Support	Interpersonal influences (e.g. beliefs and attitudes) of friends and/or acquaintances of a church group (Pender, 2011).	Participation in a church group as measured by the self-report of Bible study and/or ministry meeting attendance using a daily tracking log.
Demographics	Identifiable characteristics of a study population.	Measured by the self-report of age, BMI, marital status, education, income, employment, and health conditions of the study population.
Physical Activity	Body movements requiring the use of skeletal muscles (CDC, 2011b).	The number of steps walked as measured by the daily recordings of steps using a pedometer.
Health Promoting Physical Activity Behavior	Acknowledgement of personal biological factors to achieve a desired health behavioral outcome (Pender, 2011).	Participation in exercise as measured by the Health Promoting Lifestyle Profile II questionnaire physical activity subscale mean score for items 4, 10, 16, 22, 28, 34, 40, and 46 (Walker & Hill-Polerecky, 1996).

Setting

African American faith communities in the Dallas-Fort Worth Metroplex were the setting for this study. The congregations were of different denominations including but not limited to Baptist, African Methodist Episcopal, Seventh Day Adventist, Church of

God in Christ, and/or Non-denominational faith communities. The size of the faith communities ranged from 500 – 5,000 members (or attendees). This setting was selected because the majority of attendees in African American faith communities were AAW and this setting was most appropriate to recruit participants for the study.

Sample

Sampling Criteria

The target population for this study was AAW residing in Texas, and the sampling frame was AAW residing in the Dallas-Fort Worth Metroplex area that were members of a faith community. This population was chosen due to the higher morbidity and mortality rates among AAW related to physical inactivity (Institute of Medicine of the National Academies, 2007). The sample included participants who were AAW, 18 – 64 years old, current members of a Bible study and/or ministry meeting group (i.e. Women group or Sunday school class), and able to read, write, and speak English. The exclusion criteria included those who currently had physical limitations, used any walking aids (i.e. cane or walker), or currently engaged in more than 5 hours of physical activity per week. However, participants with health conditions such as respiratory or heart disease were not excluded from participating in the study.

Sample Size

The estimation of sample size and effect size was based on inductive and deductive methods as well as conservative estimations (Murphy, Myers, & Wolach, 2009). Power calculations for sample size estimation were computed using G Power (Faul, Erdfelder, Buchner, & Lang, 2009). The parameters for determining the sample size estimation for correlation of two continuous variables were effect size, alpha, and power level. Based on studies by Adams et al. (2000), Ballard (2009), Peterson and Cheng (2011), and Thomas et al. (2009), 84 participants were required for this study,

based on a moderate effect size of $r = .30$, alpha of $.05$, and power of $.80$. To account for attrition or incomplete data collection tools, the sample size was increased by 35% ($n = 115$). In addition, analyses were performed to confirm the randomness of missing data by examining any significant differences in the variables among participants with partial or incomplete data.

Sampling Method

A nonprobability sampling design was chosen because participants were recruited from multiple African American faith communities in the Dallas-Fort Worth Metroplex area but were members of a one group design. A convenience sampling method was used to select participants for the study. The participants were recruited based on convenience as well as the inclusion and exclusion criteria for the study. This sampling technique was nonrandom, and the estimation of probability selection could not be accurately determined. To attain internal validity the principal investigator controlled for some of the study variables by examining the characteristics of the sample and reporting how the participants were representative of the population (Gliner et al., 2009).

Recruitment Method

The researcher contacted potential faith community sites for recruiting participants, presented the study proposal to leaders of the faith communities, and responded to any questions (See Research Proposal Presentation in Appendix A). After approval was received from the faith communities, the principal investigator asked the pastor (or designee) for a letter of support to conduct the research at the faith community (See Support Letter in Appendix B). After obtaining support to conduct the study, the principal investigator attended Bible study groups and/or ministry meetings to explain the research study, respond to questions, and recruit potential participants. In addition, flyers

were posted with study and recruitment information in the bulletins, information boards, and/or on the faith community website (See Recruitment Flyer in Appendix C).

Screening, Eligibility, and Enrollment Method

Screening was initiated and completed by the principal investigator onsite and over the telephone by using the inclusion and exclusion criteria. Participants meeting the sample criteria were selected to participate in the study. The principal investigator explained the consent form (See Consent Form in Appendix D) and study procedures to the women who were eligible and voluntarily consented to participate in the study. Then participants were enrolled in the study onsite (See Methods and Procedures Diagram in Appendix E).

Measurement Methods

Demographics and Health Status Questionnaire

The demographic/health status questionnaire was administered to collect data related to the age, BMI, marital status, education, employment status, income, and chronic health conditions of the participants at time of enrollment (See Demographic and Health Status Questionnaire in Appendix F).

Health Promoting Lifestyle Profile II Questionnaire

Health Promoting Lifestyle Profile II questionnaire was administered at time of participant enrollment to measure health promoting behavior of physical activity (See Health Promoting Lifestyle Profile II Questionnaire in Appendix G). The Health Promoting Lifestyle Profile II questionnaire has been made available in the public domain if administered in the original form and used for non-commercial data collection purposes (University of Nebraska Medical Center, 2014) (See Permission Letter to Use Health Promoting Lifestyle Profile II Questionnaire in Appendix H).

Physical Activity

Physical activity of study participants was measured by using an activity tracker with reported 98% accuracy (i.e. 3D sensor multifunction pedometer). Participants were asked to wear the activity tracker for 14 consecutive days, and the number of steps taken during this time period were recorded on a daily tracking record (See Daily Tracking Record in Appendix I).

Faith-based Support

Faith-based support was measured by church group participation such as Bible study and/or ministry meeting attendance. Frequency of church group attendance was recorded on a daily tracking record during the same 14 consecutive day period as the physical activity recordings (See Daily Tracking Record in Appendix I).

Psychometric Testing

Demographic and Health Status Questionnaire

The demographic and health status questionnaire contained eleven questions pertaining to demographic and health information as well as physical activity and church group participation. This questionnaire was developed by this researcher based on literature regarding data needed to address the study problem.

Health Promoting Lifestyle Profile II Questionnaire

The original 48-item Health Promoting Lifestyle Profile (HPLP) tool was published by Walker, Sechrist, and Pender in 1987. The Health Promoting Lifestyle Profile was revised in 1995 to the Health Promoting Lifestyle Profile II questionnaire due to updated literature findings and practices. The Health Promoting Lifestyle Profile II questionnaire contains 52 items (comprised of six subscales) which are rated on a 4 point Likert scale (never = 1, sometimes = 2, often = 3, and routinely = 4) and measures the frequency of self-reported health promoting behavior. The six subscales are health responsibility,

physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. Scoring was calculating the mean scores of the physical activity subscale (Walker & Hill-Polerecky, 1996; Walker, Sechrist, & Pender, 1987).

Initial psychometric properties were evaluated using item analysis, factor analysis, and internal reliability measures based on the responses of 952 adults residing in Midwestern communities (Walker et al., 1987). The subscales (self-actualization, health responsibility, exercise, nutrition, interpersonal support, and stress management) of the original instrument accounted for 47.1% of the variance in health promoting behavior. The Cronbach's alpha coefficient for the Health Promoting Lifestyle Profile questionnaire was .922, and reliability scores (alpha coefficient) for the subscales ranged from .702 to .904. The alpha coefficient for the Health Promoting Lifestyle Profile II questionnaire was .9469, and the Cronbach alpha for the subscales ranged from .7293 to .8889 with a 3 week test-retest reliability of .892 for the total instrument (Walker et al., 1987).

Reliability and validity measures of the Health Promoting Lifestyle Profile II questionnaire were evaluated on the responses of 712 adults aged 18 to 92 with content validity, construct validity, and criterion-related validity (Walker & Hill-Polerecky, 1996). Content validity was established through content expert evaluation, and construct validity was assessed by factor analysis and confirmed by correlation with the Personal Lifestyle Questionnaire ($r = .678$). Criterion-related validity was evaluated by significant correlations (concurrent measures) of perceived health status and quality of life ($r = .269$ to $.491$), indicating that the instrument is a highly reliable and valid tool (Walker & Hill-Polerecky, 1996).

Study Procedures

Ethical Considerations

Research methods and procedures were presented to the Institutional Review Board (IRB) of the University of Texas at Arlington. As part of the application process, a proposal was presented to the leaders of faith communities in the Dallas-Fort Worth Metroplex. During the proposal the principal investigator explained the study purpose, the participants needed, time frames, data collection process, and provided the principal investigator's contact information for any questions or concerns. After study approval was received from the University of Texas at Arlington's IRB and the potential faith community sites, the principal investigator began the recruitment and data collection process.

Potential Risks and Benefits

The risk/benefit ratio was assessed by determining the participants' exposure to any physical, psychological (e.g. stress or embarrassment), social (e.g. disgraced or humiliated within social group), and/or financial risks that are unreasonable regarding the benefits. The principal investigator assessed if the use of the data would be more beneficial for the participants or for the purposes of the study.

There were no perceived risks or discomforts for participating in this research study, other than wearing the activity tracker and the time to complete the questionnaires and daily tracking record. The principal investigator informed the participants that unanticipated risks might be possible and that the study would be stopped immediately if the participants experienced any risk or harm. Safety measures (e.g. monitoring and protecting confidentiality of participants) were incorporated into the research design to protect the participants from breach of confidentiality. All study data were confidential and any identifying information did not appear on the questionnaires or daily tracking

record. Study records were identified with a number unique to the participant and data were kept separate from any identifying information.

Even though there may not have been any direct benefits, a potential benefit for the participants could have been increased motivation to improve their physical activity. The anticipated benefits to society would include contributing to current nursing literature concerning the development of faith-based interventions for improving physical activity outcomes in AAW.

Data Collection

Participant eligibility was based on the inclusion and exclusion criteria, all participants reviewed the consent form, and the principal investigator responded to any questions. Informed consent was obtained by the principal investigator at the faith community in which the participant was a member or an attendee. During study enrollment, the participants completed and returned the demographic/health status and Health Promoting Lifestyle Profile II questionnaires to the researcher while at the faith community.

The principal investigator gave all participants an activity tracker and explained how to use and operate the device. All participants were given a daily tracking record on which to record their activity tracker readings and Bible study (or ministry meeting) attendance. The principal investigator explained to all participants how to record their activity tracker readings and Bible study (and/or ministry meeting) attendance on the daily tracking record. The participants recorded their activity tracker readings daily for 14 consecutive days and Bible study (or ministry meeting) attendance during the same 14 day period. The principal investigator collected all daily tracking records at the faith community (unless otherwise requested) in which the participant is a member (or an attendee) at the end of the 14 day data collection period.

Data Analyses

Data Coding and Data Cleaning

Faith-based support and participant demographics were explanatory variables and the response variables were physical activity and the health promoting behavior of physical activity. These variables were coded and analyzed in order to obtain maximum information from the data. Data from the questionnaires were placed in a hard copy (code book) and an electronic file in order to comply with auditing regulations of the IRB. The principal investigator entered and coded the data in two phases: 1) data from the questionnaires and 2) data from the daily tracking records. Data were analyzed using IBM SPSS Statistics version 22 (Gliner et al., 2009).

The principal investigator addressed data cleaning by accounting for missing data and checking for any outliers which could be due to data collection, data recording, or data entry errors. Double entry coding was performed, and the two databases were compared to verify that data were entered correctly. Cases with missing data were coded as missing data by using blanks for items with no response. However, for these cases, the remainder of the data was retained for data analyses. Data cleaning procedures were maintained for all study participants, and explanations for omitting any unanswered responses (or extreme observations) were provided. Data cleaning procedures were documented and made available for reporting.

Descriptive Statistics of Study Participants

Frequencies and percentages were computed to describe the nominal demographic variables and means/*SD* were computed to describe the continuous variables (See Table 3.2). Socioeconomic status (including marital status, education level, employment status, and total annual household income) was described as ordinal variables and included three to five categories. Additionally, a frequency distribution was

computed to describe categorical variables for health conditions reported by the participants.

Descriptive Statistics of Physical Activity and Church Group Participation

The physical activity and church group participation of the study participants was described as nominal and/or ordinal variables (See Table 3.3). The categories for these variables included the types of physical activity and church group participation the participants were involved in, and if the participants engaged in physical activity with church group members (including frequency and location).

Statistical Analyses of the Study Variables

Bivariate associations between faith-based support, demographics, physical activity levels, and the health promoting behavior of physical activity as specified by the Health Promoting Lifestyle Profile II questionnaire were analyzed using the Spearman's Rank Correlation Coefficient. The principal investigator was able to interpret if the correlation is negative, positive, or none (-1.0 to 0.0 to +1.0). When interpreting the research findings, the strength of the association between the study variables was also determined (Gliner et al., 2009).

Statistical Test Assumptions

The underlying statistical test assumptions for the Spearman's Rank Correlation Coefficient are (a) the sample is non-normality distributed, (b) no assumption on variance relationship, or (c) data normally ordinal or nominal and less affected by outliers (Gliner et al., 2009).

The potential for violating these assumptions could occur if the principal investigator fails to assess for assumptions which could lead to incorrect conclusions. Therefore, the principal investigator will be aware of any potential violation of statistical test assumptions by checking for normality distribution of the criterion variable and

equality of variances, representativeness of the sample, and the robustness of the statistical tests.

Statistical Analyses for Research Questions

Bivariate analyses of faith-based support (church group attendance), physical activity (pedometer readings and the health promoting behavior physical activity subscale mean score), and demographic variables were computed using the Spearman's Rank Correlation Coefficient to examine the following research questions:

1. What are the relationships between participation in faith-based groups and physical activity levels among African American women in faith communities?
2. What are the relationships between demographic variables and the health promoting behavior of physical activity among African American women in faith communities?

Delimitations

In the Dallas-Fort Worth area, the attendees of African American faith communities were predominantly AAW compared to African American men or other ethnicities (both male and female), making this setting an appropriate venue for this study. For this reason, faith communities that were not predominantly African American were not included in this study.

A convenience sample of 115 AAW were recruited, and in all probability AAW were more accessible for study participation in the Dallas-Fort Worth Metroplex due to an abundance of African American faith communities located in this area. African American women who are nonbelievers or members of non-faith based groups (i.e. atheists) were not included in this study because the objective was to examine relationships among AAW who received support in their faith communities.

Faith-based support, demographics, physical activity levels, and health promoting behavior were variables of interest the principal investigator could not control, however, examining the relationship would be a basis for developing a physical activity intervention most effective for inactive AAW in faith communities. For this study, religion nor religious content was not reviewed with the intention of retrieving the most relevant and current information regarding physical activity participation in AAW receiving faith-based support.

Chapter Summary

In this chapter, the research design, sample, sampling criteria, sampling strategy, setting were described. An explanation of the study questionnaires, portable activity tracking device, and daily tracking record were discussed. The data analyses, ethical considerations, and delimitations were discussed.

Table 3.2 Demographic and Health Characteristics of Study Participants

Variables	Question	Responses	Mean (SD)	n (%)
Age	What is your age?	State age in years		
BMI	State your height (ft./in.) State your weight (lbs.)	BMI categories: Below 18.5 (Underweight) 18.5 – 24.9 (Normal) 25.0 – 29.9 (Overweight) 30.0 and above (Obese)		
Marital Status	What is your marital status?	Now married Widowed Divorced Separated Single Never married Cohabiting		
Education	What is the highest degree or level of school you have completed?	No high school diploma High school Some college College degree Professional degree		
Employment	What is your current employment status?	Employed Self-employed Out of work and looking for work Out of work but not currently looking for work A homemaker A student Retired		
Income	What is your total household income?	Less than \$10,000 \$10,000 to \$39,999 \$40,000 to \$69,999 \$70,000 to \$99,999 \$100,000 or more		
Health Conditions	Please check all the health conditions below that apply to your past history and your current state of health.	Current or Past History: High Blood Pressure Diabetes Heart Disease Stroke Cancer Respiratory/Lung Disease Depression		

Table 3.3 Physical Activity and Church Group Participation of Study Participants

Variable	Question	Responses	n(%)
Type of Physical Activity	Check all the exercise(s) you do regularly?	Walking Jogging (or Running) Aerobics (or Cardio) Muscle Strengthening Other	
Type of Church Group Participation	Which church group(s) do you regularly attend?	Sunday School Women's Bible Study Ministry Meeting Other	
Physical Activity with Church Group Members	Do you exercise (such as walking) with member(s) of your church group(s)?	Yes No	
Frequency of Physical Activity with Church Group Members	How often do you exercise with member(s) of your church group(s)?	Once a week 2 – 3 times weekly > 3 times weekly Other Not applicable	
Location of Physical Activity with Church Group Members	Where do you exercise with the member(s) of your church group(s)?	Fitness/Health Club or Gym Church Personal Residence Other Not applicable	

Chapter 4

Findings

This chapter includes descriptive data of relationships among physical activity and church group participation of the study participants. A description of the study sample's age, BMI, and socioeconomic status (including marital status, education level, employment status, income, and health conditions) are provided. The relationships among demographic variables, health promoting behavior of physical activity as specified in the Health Promoting Lifestyle Profile II questionnaire, pedometer readings, and church group participation are also provided.

Description of the Study Sample

The study sample consisted of 115 African American women from eight African American faith communities in the Dallas-Fort Worth Metroplex. Frequencies and percentages were computed to describe demographic variables and means/*SD* were computed to describe the continuous variables. The mean age of the study participants was 50.98 years (*SD* = 9.63, range 21 – 64). The average BMI score was 31.39 (*SD* = 6.51, range 18.90 – 50.50). Based on the BMI categories, slightly over half of the study participants were obese. Almost a third of the sample was overweight with less than 15% being normal weight. Over half of the sample (51.3%) was married, 43.5% had college degrees, and 70% were employed. Minimal differences in percentages were found among the middle levels of household income (See Table 4.1).

Table 4.1 Description of the Study Sample

Variables		n	%
BMI Category	Normal weight	17	14.8
	Overweight	37	32.2
	Obese	59	51.3
Marital Status	Now married	59	51.3
	Widowed	8	7.0
	Divorced	24	20.9
	Separated	3	2.6
	Single	12	10.4
	Never married	8	7.0
	Cohabiting	1	0.9
Education	Less than 12th grade, no diploma	4	3.5
	High school graduate	14	12.2
	Some college, no degree	31	27.0
	College degree	50	43.5
	Professional degree	15	13.0
Employment	Employed	81	70.4
	Self-employed	10	8.7
	Out of work and looking for work	5	4.3
	Out of work but not currently looking for work	6	5.2
	Homemaker	2	1.7
	Student	1	0.9
	Retired	10	8.7
Income	Less than \$10,000	8	7.0
	\$10,000 to \$39,999	29	25.2
	\$40,000 to \$69,999	31	27.0
	\$70,000 to \$99,999	26	22.6
	\$100,000 or more	17	14.8

Health Conditions

From the Demographic/Health Status questionnaire, the participants were asked to report all the health conditions that applied to their past history and current state of health. Seventy-nine percent of the sample reported they did not have any past health conditions while 6.1% reported a past history of high blood pressure and 6.1% depression. Over fifty percent of the participants (54.7%) reported they did not have any current health conditions, and 27% reported they currently have high blood pressure whereas 14.8% reported having multiple health conditions (e.g. a combination of high blood pressure, diabetes, heart disease, stroke, cancer, respiratory/lung disease, and/or depression) (See Table 4.2).

Table 4.2 Descriptive Data of Health Conditions

Variables		n	%
Past Health Conditions	None	91	79.1
	HBP	7	6.1
	Diabetes	1	0.9
	Cancer	4	3.5
	Depression	7	6.1
	Multiple Health Conditions	5	4.3
	Total	115	100
Current Health Conditions	None	63	54.7
	HBP	31	27.0
	Diabetes	1	0.9
	Depression	3	2.6
	Multiple Health Conditions	17	14.8
	Total	115	100

Church Group Participation and Regular Exercises

The participants were asked to provide information about their church group participation, regular exercises, and if they had ever been instructed not to participate in any type of physical activity (e.g. walking) by their health care provider. The church group participation categories can be found in Table 4.3. Of this sample, only 1.7% reported they had received instructions not to participate in any physical activity, but they were allowed to participate in the study. Forty-three percent reported walking as an exercise they did regularly, and 39.1% reported participating in multiple exercises (e.g. a combination of walking, jogging, aerobics, and/or muscle strengthening). Dancing (1.7%), elliptical training (1.7%), and Tae Bo (0.9%) were also reported as other exercises done regularly.

In addition to the church groups listed in the Demographic/Health Status questionnaire, this sample reported participating in other church groups (or ministry meetings) such as Bible study, prayer meetings, and women's ministry (See Table 4.4). When asked about exercising with church group members, 85.2% reported they did not exercise with members of their church groups.

For participants who exercised with church group members, 6% did so two to three times weekly while the remainder of the sample reported they exercised with church group members once a week (3.5%), or greater than three times weekly (2.6%). Four percent reported they exercised at other times such as two to three times monthly (0.9%) or once a month (0.9%). Of this sample, four percent exercised with group members of their church, while 3.5% exercised with their church members in multiple locations (e.g. a combination of fitness/health club, church, and/or personal residence). Other exercise locations reported were the park (2.6%) and outdoor trails (0.9%).

Table 4.3 Church Group Participation

Variables		n	%
Church Group Participation	Sunday School	13	11
	Women Bible Study	2	2
	Ministry Meeting	2	2
	Multiple Groups	80	70
	Other	13	11
	Not Answered	5	4
	Total	110	100

Table 4.4 Other Church Group Participation

Variables		n	%
Other Church Groups	Bible Study	7	6.1
	BSF	1	0.9
	Children's Ministry	2	1.7
	Choir	7	6.1
	Church	5	4.3
	Courtesy Ministry	1	0.9
	Daughters of Deborah	1	0.9
	Deaconess	1	0.9
	Food Bank	1	0.9
	Health Ministry	1	0.9
	Mid-Week Ministry	1	0.9
	New Members	1	0.9
	Outreach Ministry	1	0.9
	Praise Team	1	0.9
	Prayer Meeting	4	3.5
	Prayer Service	1	0.9
	Prayer Warriors	1	0.9
	Sabbath School	1	0.9
	Senior Ministry	1	0.9
	Steward Meeting	1	0.9
	Sunday Services	1	0.9
	Usher	2	1.7
	Usher Ministry	1	0.9
	Water Aerobics	1	0.9
	Women Ministry Society	1	0.9
	Youth Ministry	2	1.7
	YPD	1	0.9

Health Promoting Lifestyle Profile II Questionnaire

Physical Activity Subscale Scores and Pedometer Readings

Physical activity was assessed by the Health Promoting Lifestyle Profile II questionnaire physical activity subscale which consists of eight items that are rated on a 4 point Likert scale (never = 1, sometimes = 2, often = 3, and routinely = 4). This subscale measures the frequency of self-reported health promoting behavior with regards to physical activity. Mean (or average) scores were calculated to maintain the 1 to 4 scoring range of item responses (Walker & Hill-Polerecky, 1996; Walker, Sechrist, & Pender, 1987). The number of participants who completed the Health Promoting Lifestyle Profile II questionnaire were 115, and the mean score of the physical activity subscale was 2.21 ($SD = 0.665$, range 1 – 4). The sample distribution for this variable was slightly skewed to the right with one peak from 1.75 to 1.88. Most of the physical activity subscale mean scores were found to be between 1.13 and 2.75.

The pedometer readings were recorded over a 14 consecutive day period, and the number of study participants reporting the pedometer readings (recorded on the Daily Tracking Record) were 81 with a mean score of 73,605.73 steps ($SD = 34,594.18$, range 8,548 – 172,981). Due to the loss of participants ($n=34$), all blank values during the 14 day study period were coded as missing data. However, data collected from all participants ($n=115$) were retained for data analyses.

This distribution was multimodal and was not skewed or symmetrical. Multiple peaks were noted from 60,000 to 70,000 steps and 80,000 to 100,000 steps. The pedometer readings covered a large range of values, and a gap was noted between 170,000 and 180,000 steps.

Faith-based Support Scores

Faith-based support was assessed by recorded church group attendance on the Daily Tracking Record that occurred during the same 14 consecutive day period as the pedometer recordings. Study participants who self-reported on faith-based support ($n = 81$) had a mean of 5.74 events attended during the 14 day study period ($SD = 3.95$, range 0 – 25). The distribution for faith-based support scores showed the sample most frequently attended church groups between four to eight times within a 14 consecutive day period. The distribution was multimodal with the highest peaks ranging from three to four and eight to ten times within the study period. There were gaps from 12 – 19.99 and 20 – 24.99 times regarding church group attendance with an identified outlier indicating one participant attended church groups 25 times during the study period.

Normality Tests for Continuous Variables

Shapiro-Wilk tests were performed and showed the variables age, BMI scores, physical activity (pedometer readings/physical activity subscale), and church attendance were not normally distributed at a significance level of $p < .05$. However, BMI scores and physical activity were normally distributed at a significance level of $p < .01$ (See Table 4.5).

Table 4.5 Shapiro-Wilk Normality Tests

Variables	W	df	<i>p</i>
Age	.933	115	<.0001
BMI Score	.975	113	.035
Pedometer Readings	.963	81	.020
Church Attendance	.841	81	<.0001
Physical Activity Subscale	.971	115	.013

Larger sample sizes could potentially bias the results of the normality tests in which a p -value of $< .05$ would indicate a non-normally distributed sample. Therefore, a

p-value of .01 would be more appropriate in determining if there was a substantial deviation from normality (Ghasemi & Zahediasl, 2012). In order to provide thorough analyses of the data, the Pearson Product-Moment Correlation coefficient was justifiable to analyze the bivariate correlations between faith-based support and pedometer readings. The Spearman's Rank Correlation Coefficient was also used to analyze bivariate associations between the key variables.

Bivariate Analyses of Faith-based Support and Physical Activity

Research Question 1

What are the relationships between participation in faith-based groups and physical activity levels among African American women in faith communities?

Pearson Product-Moment Correlation Coefficient

The bivariate analyses of church group attendance (faith-based group participation) had a weak but significant correlation $r(79) = .282, p = .011$ with pedometer readings (physical activity levels). Higher church group attendance was associated with higher physical activity levels.

Spearman's Rank Correlation Coefficient

The bivariate analyses of church group attendance were not significantly correlated $r_s(79) = .215, p = .053$ with pedometer readings. Church group attendance was not significantly correlated $r_s(79) = -.036, p = .753$ with the Health Promoting Lifestyle Profile II questionnaire physical activity subscale.

Bivariate Analyses of Demographic Variables and Physical Activity

Research Question 2

What are the relationships between demographic variables and the health promoting behavior of physical activity among African American women in faith communities?

Spearman's Rank Correlation Coefficient

The bivariate analyses of the Health Promoting Lifestyle Profile II questionnaire physical activity subscale was significantly associated with education $r_s(112) = .252$, $p = .007$ and income $r_s(109) = .285$, $p = .002$. Increased physical activity levels were associated with higher education and income levels. However, the physical activity subscale was not significantly associated with age, BMI score, BMI category, marital status, and employment (See Table 4.6).

Table 4.6 Correlations of Demographic Variables with Physical Activity Subscale

Variables	r_s	p
Age	.149	.113
BMI Score	-.177	.061
BMI Category	-.160	.090
Marital Status	-.158	.091
Employment	.082	.381

There were no significant correlations between demographic variables and pedometer readings. The bivariate analyses can be found in Table 4.7. Additionally, there were no significant associations among church group participation and demographic variables (See Table 4.8).

Table 4.7 Correlations of Demographic Variables and Pedometer Readings

Variables	r_s	p
Age	.128	.256
BMI Score	-.042	.712
BMI Category	.002	.984
Marital Status	-.181	.105
Education	-.073	.521
Employment	.025	.825
Income	-.136	.234

Table 4.8 Correlations of Demographic Variables and Church Group Participation

Variables	r_s	p
Age	.131	.243
BMI Score	-.047	.681
BMI Category	.024	.830
Marital Status	-.190	.089
Education	-.041	.721
Employment	.131	.243
Income	-.199	.079

Bivariate Analyses of Pedometer Readings and Physical Activity Subscale

Spearman's Rank Correlation Coefficient

Bivariate analyses revealed that pedometer readings were significantly associated $r_s(79) = .232, p = .037$ with the health promoting behavior of physical activity subscale mean scores which is also evidence of convergent validity of the Health Promoting Lifestyle Profile II questionnaire. Higher pedometer readings were associated with higher physical activity subscale mean scores.

Chapter Summary

In this chapter, associations among physical activity and faith-based support (church group participation) were described. A description of the sample, socioeconomic, and health status data (age, BMI, marital status, education level, employment status, income, and health conditions) were provided. The relationships among demographic variables, the Health Promoting Lifestyle Profile II questionnaire physical activity subscale, pedometer readings, and church group participation were also discussed.

Chapter 5

Discussion

This study examined the relationships between physical activity (pedometer readings), faith-based support (church group participation), demographic variables, and the health promoting behavior of physical activity as specified in the Health Promoting Lifestyle Profile II questionnaire among African American women in faith communities in the Dallas-Fort Worth Metroplex.

This chapter includes the interpretation of major findings and how major findings compared with previous studies regarding physical activity, faith-based support, and demographic variables. The study limitations, summary of key findings, implications for nursing, and recommendations for future research are also discussed.

Sample

Demographics and Health Conditions

Demographic characteristics (age, BMI scores, BMI category, marital status, education, employment, and income) were examined for any associations with physical activity (pedometer readings and the health promoting behavior of physical activity per the Health Promoting Lifestyle Profile II questionnaire). The association between the demographic variables and group participation were also examined. Bivariate associations were studied for their contribution to physical activity levels in African American women receiving support in faith communities.

Age

According to the United States Census Bureau (2014), the number of adults 65 years and older will exceed 83 million by 2050. Physical activity levels decline as adults get older (USDHHS, 2008). Therefore, age could potentially be a personal barrier to maintaining health promoting physical activity practices.

In the present study, majority of the sample (63%) was at least 50 years of age or older. However, age was not significantly associated with physical activity levels exceeding normal daily activity. Additionally, age was not associated with health promoting physical activity practices. These study findings were not consistent with Anderson and Pullen (2013) and Duru et al. (2010) who discovered that African American women ≥ 60 years of age were physically inactive at baseline prior to the implementation of faith-based physical activity interventions. The findings for the present study were not the same due to the implementation of self-report versus direct measures.

BMI Scores and BMI Category

BMI levels were associated with exercise frequency (National Health and Nutrition Examination Survey from 1999 – 2004, the Behavioral Risk Factor Surveillance System 2003 data, and the 2004 National Health Interview Survey data). In this study, BMI scores (calculated score of height and weight) and BMI category (underweight, normal weight, overweight, and obese) were not significantly associated with pedometer readings or the health behavior of physical activity subscale. The majority of this study sample was obese indicating the BMI score was ≥ 30 kg/m². In comparison, the National Health Interview Survey (2004) data revealed that higher BMI scores are more prevalent with chronic health conditions.

For example, some participants in the obese category (≥ 30 kg/m²) may have increased their physical activity for the study compared to women who were in the normal weight (18.5 – 24.9 kg/m²) and overweight (25.0 – 29.9 kg/m²) categories. Based on the present study findings, BMI scores and BMI category could not be classified as a factor regarding physical activity behavior practices or physical activity levels.

Socioeconomic Status

Marital status and employment were not significantly associated with pedometer readings or the physical activity mean subscale score of the Health Promoting Lifestyle Profile II questionnaire. The majority of the sample was married (51.3%) and employed (70%). There was no relationship between physical activity (pedometer readings/physical activity mean subscale score) and marital status. The same was true for physical activity and employment. In the literature, African Americans of lower socioeconomic status were found to be physically inactive, divorced, and/or widowed (National Center for Health Statistics, 2014; USCB, 2012; Wilson et al., 2004)

The study findings showed that African American women with a higher total annual household income and education would more likely engage in physical activity. This could possibly be attributable to more financial support to join and/or participate in a regular exercise program. With regards to education, the findings may be attributable to the knowledge level of the sample concerning health benefits such as improvements in weight control, high blood pressure, depression, and muscle and bone strengthening associated with increased physical activity levels (USDHHS, 2008).

These findings were consistent with studies by Wilson et al. (2004) and Pamper, Krueger, and Denney (2010) who discovered adults with lower socioeconomic status were less active and faced barriers which limited their physical activity levels. Wilson and colleagues (2004) also reported a low annual household income plays a vital role in health promoting physical activity behaviors that were conceivably related to unattainable childcare, high-priced exercise facilities, and a lack of transportation.

Health Conditions

The majority of the sample reported they did not have any past health conditions (79.1%) or current health conditions (54.7%). Only a small percentage (6.1%) reported a

past history of high blood pressure and (6.1%) reported a past history of depression. High blood pressure was the most frequently reported chronic disease (27%). However, 14.8% reported having multiple health conditions, such as a combination of high blood pressure, diabetes, heart disease, stroke, cancer, respiratory/lung disease, and/or depression.

Although a small percentage of the sample reported having past health conditions, the majority of the participants were obese with an average BMI of 31.39 kg/m². Obese African American women with a BMI \geq 30 kg/m² tend to have higher mortality rates due to high blood pressure, stroke, and/or type 2 diabetes (CDC, 2011a; CDC, 2013a). The findings were unanticipated due to the self-reporting of not only high blood pressure, but also the reporting of being diagnosed with multiple health conditions.

Self-reported physical activity was significantly and negatively associated with current health conditions. Women with fewer health conditions reported higher levels of physical activity. These findings were congruent with a study by Anderson and Pullen (2013) who reported that older African American women with chronic health conditions such as high blood pressure and depression were not physically active because of their physical insecurities. Therefore, physical limitations related to chronic disease could potentially lead to physical inactivity.

Recruitment Challenges

Many challenges became apparent during the recruitment process. Gaining access to present the research proposal to church leadership due to the hierarchal structure of some faith communities presented as a major challenge. Another challenge was obtaining permission to recruit potential study participants due to the lack of follow-up from church leadership after the study proposal presentation. Additionally, recruitment was considered unsuccessful among faith communities without a primary

church contact to serve as liaison between the researcher and church leadership compared to faith communities who had a primary church contact.

These recruitment challenges could have potentially affected the study findings regarding the characteristics of the study participants. Over half of the study participants (63%) were 50 years of age or older, and the primary outcome measures could have been affected due to the lack of younger participants in the study sample. In addition, information about health promoting physical activity practices among younger participants could have feasibly affected the outcomes of the study. Other demographic findings such as BMI, education, and income could also have been affected due to the inability to recruit the accessible survey population.

Faith-based Support, Physical Activity, and Demographic Variables

The African American church has been identified as a source of information for spiritual guidance as well as faith-based support (Campbell et al., 2007). Women of this minority group have often shared their personal requests and/or health interests (including physical activity) with members of the church groups they attend (Greif & Sharpe, 2010; Harvey & Alexander, 2012). Also, some faith communities provide physical activity programs on a regular basis to heighten awareness regarding physical activity and health promoting behaviors (Whitt-Glover et al., 2012).

In the present study, faith-based support approached statistical significance with pedometer readings that were self-reported and recorded over a consecutive 14 day period. Additionally, faith-based support was not significantly correlated with the health promoting physical activity mean subscale score of the Health Promoting Lifestyle Profile II questionnaire. From this sample, there was a positive association between the key variables (faith-based support and physical activity). The study results were inconsistent with findings from Bopp and colleagues (2009a) who reported there was no significant

association between physical activity and church group participation. However, the researchers indicated that their study findings may have been affected by an overestimation of faith-based physical activity programs reported. In contrast, studies that implemented faith-based interventions with African American women in different church communities discovered improved health outcomes such as increased physical activity levels (Whitt-Glover et al., 2012; Whitt-Glover et al., 2008; Wilcox et al., 2010).

Pedometer Readings and Physical Activity Subscale

Pedometer readings were significantly associated with the health promoting physical activity subscale mean scores. This study finding could be indicative of physical activity practices reported at initial recruitment potentially aligned with the total number of steps taken over the 14 consecutive day follow-up period. Therefore, confirming that the self-reported data of these variables are most likely accurate.

Limitations

Social desirability could have been a contributor to the inconsistency of the study findings. For example, some participants in the obese category may have increased their physical activity for the study compared to women who were in the normal weight and overweight categories. Based on these study findings, BMI scores and BMI category could not be classified as a factor regarding physical activity behavior practices or physical activity levels. In order to attain the most accurate results, the researcher instructed each participant how to record the pedometer readings and church group participation on the Daily Tracking Record. Closely monitoring participants by physically recording the pedometer readings and church attendance could have also alleviated any inappropriate or misleading responses.

Self-report of the data could also present as a study limitation due to the fact that participants may have reported what they felt was an acceptable or anticipated

response. Even though the participants recorded their physical activity via an activity tracker (or pedometer) and faith-based support via church group attendance, there is no control over the responses provided by the participants. However, the participants were trained on the use of the pedometer and provided a return demonstration on the functions of the pedometer. Therefore, the assumption was that they were able to accurately read and record their results.

Although the Spearman's Rank Correlation Coefficient revealed faith-based support approached statistical significance with pedometer readings, bivariate analyses using the Pearson Product-Moment Correlation Coefficient, revealed a significant association between participation in faith-based groups and physical activity. The reason for these mixed findings could be attributable to a lack of statistical power due to attrition. Eighty-four participants were required to achieve statistical power. One hundred and twenty participants were screened and 115 were enrolled based on the inclusion and exclusion criteria. However, eighty-one participants completed the 14 day study period. To account for this limitation, the researcher retained all data for analyses.

Another limitation includes majority of the sample were between the ages of 50 and 60 years old versus African American women in younger age groups. Data from participants between 18 and 49 years of age may have possibly revealed different research findings about health promoting physical activity levels in African American women. The researcher made numerous attempts to different faith communities in the Dallas-Fort Worth Metroplex to recruit potential study participants within this age group.

Conclusions

This study revealed there was a positive association between the key variables faith-based support and physical activity. The development of physical activity programs with faith-based strategies may not for all intents and purposes entirely increase and/or

sustain physical activity levels in African American women. However, this may be dependent on other factors (i.e. church culture or church leadership stakeholders) that could lead to successful outcomes by increasing health promoting physical activity practices.

Although there were no significant findings between many of the demographic variables and health promoting behavior of physical activity, the study findings did reveal that education and income were significantly associated with increased physical activity levels. According to the National Center for Health Statistics (2014) and the United States Census Bureau (2012) women who were divorced and/or widowed with lower socioeconomic status were less active physically compared to women who were married and of a higher income bracket. In addition, the study findings revealed there were no significant correlations between demographic variables and pedometer readings indicating there were no associations between increased levels of physical activity and demographic characteristics in African American women in faith communities. These study findings could be attributed to personal barriers such time constraints associated with unhealthy behavioral patterns such as smoking and excessive alcohol consumption. Poor health behaviors have been found to be associated with physical inactivity which could lead to poor health outcomes (Ford, Kim, & Dancy, 2009; Webb & Gonzalez, 2006).

Implications for Nursing

Physical inactivity contributes to obesity and a number of chronic diseases such as hypertension, cardiovascular disease, stroke, diabetes, and cancer. African American women are less physically active than any other ethnic group, and have higher prevalence rates of chronic health conditions related to physical inactivity (CDC, 2011a; CDC, 2013a). However, perceived barriers and benefits could be major influences

regarding their motivation to participate in physical activity programs (Kirtland, Ainsworth, & Addy, 2004).

The present study revealed a positive association between faith-based support and physical activity, and the findings of this study adds to the literature that church group participation (or faith-based support) could be a potential factor in improving physical activity outcomes. Therefore, identifying strategies that contribute to improving physical activity practices are warranted.

Assessing differences in health promoting behaviors among African American women in faith communities could potentially enhance nursing knowledge concerning social interaction and physical activity behavior among this ethnic group. Understanding which strategies would be most appropriate for improving health promoting physical activity practices in African American women is essential to overall health outcomes of this ethnic group.

Recommendations for Future Research

Future research is imperative regarding participation and sustainability of physical activity levels in African American women. Understanding what is predictive of sustained health promoting physical activity practices are warranted, particularly among younger African American women. For this reason, enrollment of sedentary, at risk populations (including younger African American women) is essential in order to decrease the prevalence of chronic illness and ultimately premature deaths related to physical inactivity.

Longitudinal studies are necessary concerning the development of culturally tailored physical activity programs in this minority group. Evaluating physical activity programs with the intent of enhancing current knowledge, self-efficacy, and health promoting practices would be as equally important for exploring physical activity

participation, increasing sustainability, and/or decreasing attrition rates in at risk populations.

Qualitative inquiry about cultural beliefs, values, and practices of African American women receiving faith-based support could potentially enhance nursing knowledge concerning physical activity behavior in this ethnic group. Examining variables that could potentially influence health behavioral outcomes could heighten the understanding of commitments to maintaining healthy physical activity behaviors for at risk populations.

Chapter Summary

The present study examined the relationships between physical activity levels and faith-based support among African American women in faith communities in the Dallas-Fort Worth Metroplex. This chapter included the interpretation of major study findings and how these findings compared with previous studies regarding the key variables. The study limitations, summary of key findings, implications for nursing, and recommendations for future research were also discussed.

Appendix A
Research Proposal Presentation

Research Proposal Presentaton

Researcher: My name is Sharon T. Johnson and I am a PhD student at the University of Texas at Arlington College of Nursing, Arlington, Texas. I am asking for your support to recruit participants and collect data in your faith community.

Study Title: The relationship between faith-based support and physical activity levels among African American women in faith communities.

Purpose: The purpose of this study will be to examine the relationships between participation in faith-based groups and physical activity levels among African American women in faith communities.

Participants: African American women between 18 – 64 years of age.

The participants will complete two questionnaires on the first day of the study. A questionnaire about social, economic, and health status, and a questionnaire about health promoting practices called the "Health Promoting Lifestyle Profile II". It will take approximately 30 minutes to complete both questionnaires. The principal investigator will collect the questionnaires at your faith community on the first day of the study.

Procedures: On the first day of the study, the participants will be given an activity tracker to wear daily for 14 consecutive days. The principal investigator will explain to the participants how to use and operate the device. The principal investigator will explain how to record the daily activity tracking readings, and daily Bible study (and/or ministry meeting) attendance on the daily tracking record. Participants will record the activity tracking readings and Bible study (and/or ministry meeting) attendance for 14 consecutive days. The principal investigator will collect the daily tracking records at your faith community (unless otherwise requested) at the end of the 14 day period.

Possible Risks: There are no perceived risks or discomforts for participating in this research study, other than wearing the activity tracker and the time to complete the questionnaires and daily tracking record. Participants will be instructed to inform the principal investigator if any discomfort is experienced. Participants have the right to quit any study procedures at any time at no consequence.

Confidentiality: The principal investigator will assure privacy and confidentiality for the study participants. Study records will be identified with a number unique to the participant and data will be kept separate from any identifying information.

Documents: Recruitment flyer, informed consent form, questionnaires, and daily tracking record will be reviewed with the faith community leadership.

Contact Information: sharontjohnson@mavs.uta.edu or 682-208-1113

Appendix B

Support Letter for Research Study

Support Letter for Research Study

September 1, 2014

Attn: University of Texas at Arlington
Institutional Review Board
Arlington, Texas 76013

Dear IRB Members:

I have read over Sharon T. Johnson's proposal for a research project to be carried out in our faith community. I understand this student is conducting this project as part of her requirements for her dissertation research at the University of Texas at Arlington College of Nursing.

I understand the Institutional Review Board for the Use of Human Subject's in Research at the University is concerned with protecting the confidentiality, privacy, and well-being of research participants. Further, it is my understanding this student will additionally be advised in this project by her dissertation chair Dr. Judy LeFlore and committee members, who will have regular contact with her.

I do not have concerns about the study based on conversations with the student and after reviewing her research project proposal. The leadership team and I support this student's plan and approve the project, including recruitment of participants and data collection within our faith community.

Should you have additional questions or concerns, you may contact me at ([contact information](#)).

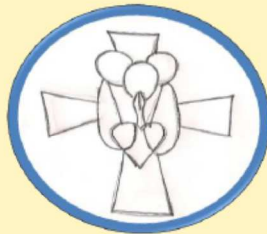
Sincerely,

Pastor (or Designee) Name

Appendix C
Recruitment Flyer

**INVITING
AFRICAN AMERICAN WOMEN
18 – 64 YEARS OLD**

**TO PARTICIPATE IN A RESEARCH STUDY
REGARDING PHYSICAL ACTIVITY AND
FAITH-BASED SUPPORT
IF INTERESTED**



**Please contact:
Sharon T. Johnson, MSN, RN, FCN
PhD Student
University of Texas at Arlington
College of Nursing
682-208-1113
or email
sharontjohnson@mavs.uta.edu**

THANK YOU!

Appendix D
Consent Form

UT Arlington
Informed Consent Document

PRINCIPAL INVESTIGATOR

Sharon T. Johnson MSN, RN, FCN
University of Texas at Arlington College of Nursing
682-208-1113
sharontjohnson@mavs.uta.edu

FACULTY ADVISOR

Judy LeFlore, PhD, RN, NNP-BC, CPNP-PC&AC, ANEF, FAAN
University of Texas at Arlington College of Nursing
817-272-2776
jleflore@uta.edu

TITLE OF PROJECT

The Relationship Between Faith-based Support and Physical Activity Levels Among African American Women in Faith Communities

INTRODUCTION

You are being asked to participate in a research study about the relationship between participation in faith-based groups and physical activity levels among African American women in faith communities. Please ask questions if there is anything you do not understand and read the complete consent form before you agree to take part in the study.

PURPOSE

The specific purpose of this research study is to learn about the relationship between faith-based support and physical activity levels in African American women in faith communities.

DURATION

You will be asked to participate in completing two questionnaires which will take approximately 30 minutes to complete, and record your daily steps and Bible study (or ministry meeting) attendance which will take approximately 5 minutes/day to complete.

NUMBER OF PARTICIPANTS

The number of anticipated participants to enroll in this research study is 120.

PROCEDURES

If you decide to participate, you will be asked to complete a screening for eligibility to participant in the research study. The screening is only for eligibility purposes and not information that will actually be used in the research. All information collected from this study (excluding the screening for eligibility) will be used in data analysis.

As a participant you will:

- Complete two questionnaires: Demographic/Health Status (ask about your basic demographics and health status information) and the Health Promoting Lifestyle Profile II (ask about your health practices).

IRB Approval Date:

1

IRB Expiration Date:

UT Arlington
Informed Consent Document

- Return the completed questionnaires to the researcher at time of study enrollment.
- Receive an activity tracker (pedometer) and a daily tracking record at time of study enrollment.
- Wear an activity tracker (pedometer) daily and recording your steps daily on the daily tracking record for 14 consecutive days.
- Record your Bible study (and/or ministry meeting) attendance on the daily tracking record during the 14 consecutive day period.
- Return the daily tracking record to the researcher at the end of the 14 day period. The researcher will collect the daily tracking record at your faith community site (unless otherwise requested).

POSSIBLE BENEFITS

There may be no direct benefits associated with your participation in this study. However, you may be motivated to improve your physical fitness, and the information obtained from this study will contribute to current nursing literature concerning the development of faith-based interventions for improving physical activity outcomes in African American women.

POSSIBLE RISKS/DISCOMFORTS

There are no perceived risks or discomforts for participating in this research study, other than wearing the activity tracker and the time to complete the questionnaires and daily tracking record. Should you experience any discomfort please inform the researcher. You have the right to quit any study procedures at any time at no consequence. All responses will be confidential and your name or other identifying information will not appear on the questionnaires or the daily tracking record. Study records will be identified with a number unique to the participant and data will be kept separate from any identifying information.

COMPENSATION

There will be no cash payment or other form of compensation. However, you will receive an activity tracker for taking part in the study.

ALTERNATIVE PROCEDURES

There are no alternative procedures offered for this study, and you may elect not to participate in the study or quit at any time with no consequences.

VOLUNTARY PARTICIPATION

Taking part in this research study is voluntary. You may choose not to take part or may leave the study at any time. Leaving the study will not result in any penalty or loss of benefits to which you are entitled or have no effect on your relationship with your faith community site. This research is being conducted by the researcher for the purposes as a student at UTA.

IRB Approval Date:

2

IRB Expiration Date:

UT Arlington
Informed Consent Document

CONFIDENTIALITY

Every attempt will be made to see that your study results are kept confidential. A copy of this signed consent form and all data collected from this study will be stored in a locked filing system in researcher's office (Room 553A) at the College of Nursing for at least three (3) years after the end of this research. The results of this study may be published and/or presented at meetings without naming you as a participant. Additional research studies could evolve from the information you have provided, but your information will not be linked to you in anyway; it will be anonymous.

Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the UTA Institutional Review Board (IRB), and personnel particular to this research have access to the study records. Your records will be kept completely confidential according to current legal requirements. They will not be revealed unless required by law, or as noted above. The IRB at UTA has reviewed and approved this study and the information within this consent form. If in the unlikely event it becomes necessary for the Institutional Review Board to review your research records, the University of Texas at Arlington will protect the confidentiality of those records to the extent permitted by law.

CONTACT FOR QUESTIONS

Questions about this research study may be directed to the researcher Sharon T. Johnson MSN, RN, FCN at 682-208-1113 or sharontjohnson@mavs.uta.edu or faculty advisor Dr. Judy LeFlore at 817-272-2776 or jlflore@uta.edu. Any questions you may have about your rights as a research participant or a research-related injury may be directed to the Office of Research Administration; Regulatory Services at 817-272-2105 or regulatoryservices@uta.edu.

As a representative of this study, I have explained the purpose, the procedures, the benefits, and the risks that are involved in this research study:

Signature and printed name of principal investigator or person obtaining consent **Date**

CONSENT

By signing below, you confirm that you are 18 years of age or older and have read or had this document read to you. You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time.

You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may discontinue participation at any time without penalty or loss of benefits, to which you are otherwise entitled.

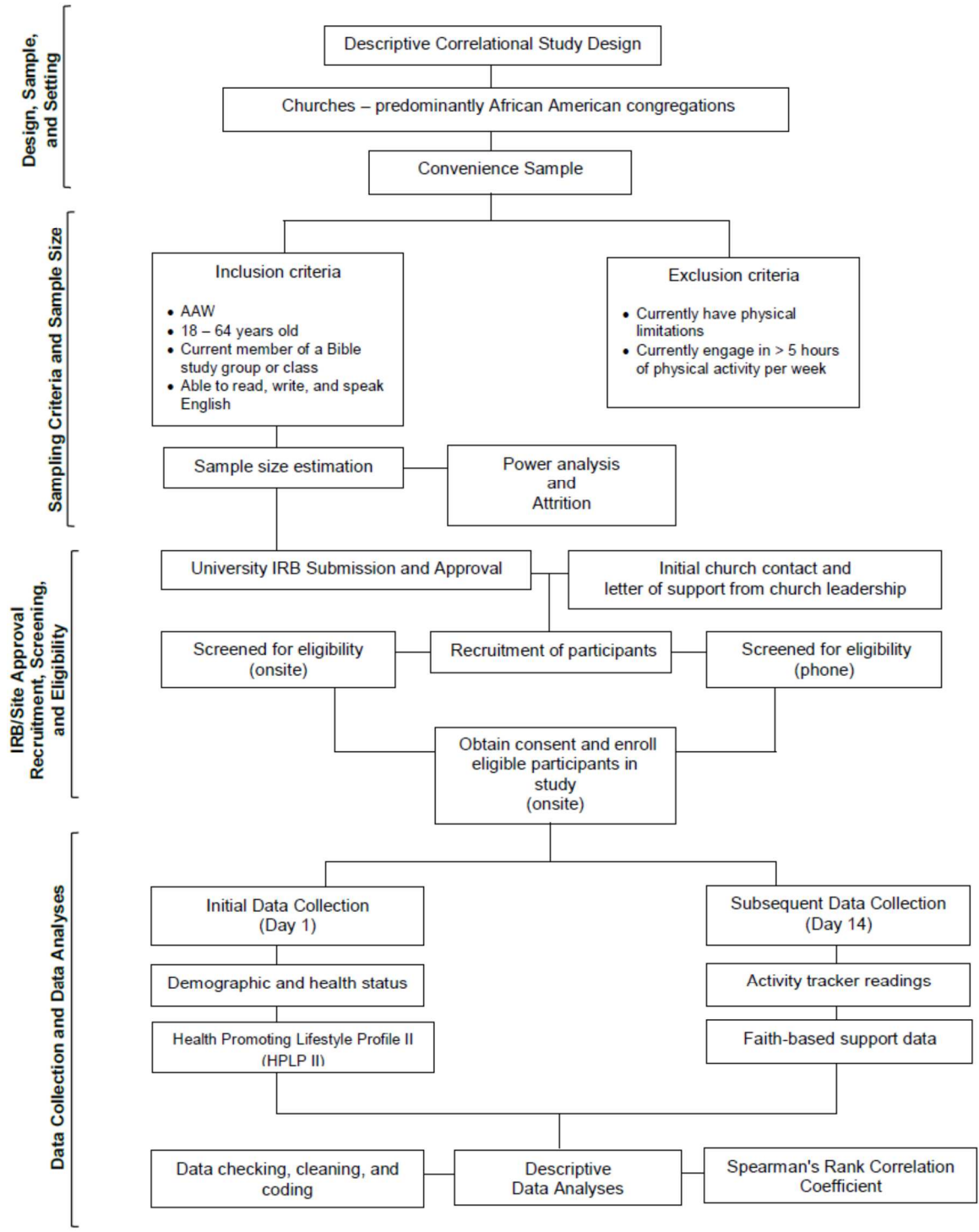
SIGNATURE OF VOLUNTEER **DATE**

IRB Approval Date:

3

IRB Expiration Date:

Appendix E
Methods and Procedures



Appendix F
Demographic and Health Status Questionnaire

ID # _____

DEMOGRAPHIC AND HEALTH STATUS QUESTIONNAIRE

The purpose of this questionnaire is to learn more about the social, economic, and health status characteristics of African American women in the Dallas-Fort Worth area. The principal investigator will use the results of this questionnaire for educational purposes only.

PLEASE DO NOT WRITE YOUR NAME ON THIS QUESTIONNAIRE!

Instructions: Please select the most appropriate answer(s).

1. Age _____ Height (feet & inches) _____ Weight (pounds) _____

2. What is your marital status? **(CHECK ONE ANSWER)**
 - Now married
 - Widowed
 - Divorced
 - Separated
 - Single
 - Never married
 - Cohabiting

3. What is the highest degree or level of school you have completed? (If currently enrolled in school, select the previous grade or highest degree received). **(CHECK ONE ANSWER)**
 - No schooling completed
 - ≤ 12th grade, no diploma
 - High school graduate – high school diploma or the equivalent
 - Some college, no degree
 - College degree
 - Professional degree (for example: MD, DDS)

4. What is your current employment status? **(CHECK ONE ANSWER)**
 - Employed
 - Self-employed
 - Out of work and looking for work
 - Out of work but not currently looking for work
 - A homemaker
 - A student
 - Retired

ID # _____

5. What is your total household income? **(CHECK ONE)**

- Less than \$10,000
- \$10,000 to \$39,999
- \$40,000 to \$69,999
- \$70,000 to \$99,999
- \$100,000 or more

6. Which church group(s) do you regularly attend? **(CHECK ALL THAT APPLY)**

- Sunday school
- Women Bible study
- Ministry Meeting
- Other _____

7. Check all the exercise(s) you do regularly? **(CHECK ALL THAT APPLY)**

- Walking
- Jogging (or Running)
- Aerobics (or Cardio)
- Muscle Strengthening
- Other _____

8. Do you exercise (such as walking) with member(s) of your church group(s)?

- Yes
- No

9. How often do you exercise with member(s) of your church group(s)?
(CHECK ONE ANSWER)

- Once a week
- 2 – 3 times weekly
- > 3 times weekly
- Other _____
- Not applicable

10. Where do you exercise with the member(s) of your church group(s)?
(CHECK ALL THAT APPLY)

- Fitness/Health Club or Gym
- Church
- Personal Residence
- Other _____
- Not applicable

ID # _____

11. Have you ever been instructed by your health care provider **NOT** to participate in any type of physical activity such as walking?
- Yes
 - No

12. Please check **ALL** the health conditions below that apply to your past history **AND** your current state of health.

Health Condition	Current	Past History
High Blood Pressure		
Diabetes		
Heart Disease		
Stroke		
Cancer		
Respiratory/Lung Disease (for example COPD)		
Depression		

Thank you for taking time to complete this questionnaire.

Appendix G

Health Promoting Lifestyle Profile II Questionnaire

LIFESTYLE PROFILE II

DIRECTIONS: This questionnaire contains statements about your *present* way of life or personal habits. Please respond to each item as accurately as possible, and try not to skip any item. Indicate the frequency with which you engage in each behavior by circling:

N for never, **S** for sometimes, **O** for often, or **R** for routinely

	NEVER	SOME TIMES	OFTEN	ROUTINELY
1. Discuss my problems and concerns with people close to me.	N	S	O	R
2. Choose a diet low in fat, saturated fat, and cholesterol.	N	S	O	R
3. Report any unusual signs or symptoms to a physician or other health professional.	N	S	O	R
4. Follow a planned exercise program.	N	S	O	R
5. Get enough sleep.	N	S	O	R
6. Feel I am growing and changing in positive ways.	N	S	O	R
7. Praise other people easily for their achievements.	N	S	O	R
8. Limit use of sugars and food containing sugar (sweets).	N	S	O	R
9. Read or watch TV programs about improving health.	N	S	O	R
10. Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber).	N	S	O	R
11. Take some time for relaxation each day.	N	S	O	R
12. Believe that my life has purpose.	N	S	O	R
13. Maintain meaningful and fulfilling relationships with others.	N	S	O	R
14. Eat 6-11 servings of bread, cereal, rice and pasta each day.	N	S	O	R
15. Question health professionals in order to understand their instructions.	N	S	O	R
16. Take part in light to moderate physical activity (such as sustained walking 30-40 minutes 5 or more times a week).	N	S	O	R
17. Accept those things in my life which I can not change.	N	S	O	R
18. Look forward to the future.	N	S	O	R
19. Spend time with close friends.	N	S	O	R
20. Eat 2-4 servings of fruit each day.	N	S	O	R
21. Get a second opinion when I question my health care provider's advice.	N	S	O	R
22. Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).	N	S	O	R
23. Concentrate on pleasant thoughts at bedtime.	N	S	O	R
24. Feel content and at peace with myself.	N	S	O	R
25. Find it easy to show concern, love and warmth to others.	N	S	O	R

	NEVER	SOMETIMES	OFTEN	ROUTINELY
26. Eat 3-5 servings of vegetables each day.	N	S	O	R
27. Discuss my health concerns with health professionals.	N	S	O	R
28. Do stretching exercises at least 3 times per week.	N	S	O	R
29. Use specific methods to control my stress.	N	S	O	R
30. Work toward long-term goals in my life.	N	S	O	R
31. Touch and am touched by people I care about.	N	S	O	R
32. Eat 2-3 servings of milk, yogurt or cheese each day.	N	S	O	R
33. Inspect my body at least monthly for physical changes/danger signs.	N	S	O	R
34. Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking car away from destination and walking).	N	S	O	R
35. Balance time between work and play.	N	S	O	R
36. Find each day interesting and challenging.	N	S	O	R
37. Find ways to meet my needs for intimacy.	N	S	O	R
38. Eat only 2-3 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day.	N	S	O	R
39. Ask for information from health professionals about how to take good care of myself.	N	S	O	R
40. Check my pulse rate when exercising.	N	S	O	R
41. Practice relaxation or meditation for 15-20 minutes daily.	N	S	O	R
42. Am aware of what is important to me in life.	N	S	O	R
43. Get support from a network of caring people.	N	S	O	R
44. Read labels to identify nutrients, fats, and sodium content in packaged food.	N	S	O	R
45. Attend educational programs on personal health care.	N	S	O	R
46. Reach my target heart rate when exercising.	N	S	O	R
47. Pace myself to prevent tiredness.	N	S	O	R
48. Feel connected with some force greater than myself.	N	S	O	R
49. Settle conflicts with others through discussion and compromise.	N	S	O	R
50. Eat breakfast.	N	S	O	R
51. Seek guidance or counseling when necessary.	N	S	O	R
52. Expose myself to new experiences and challenges.	N	S	O	R

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Appendix H

Permission Letter to Use Health Promoting Lifestyle Profile II Questionnaire

Dear Colleague:

Thank you for your interest in the *Health-Promoting Lifestyle Profile II*. The original *Health-Promoting Lifestyle Profile* became available in 1987 and has been used extensively since that time. Based on our own experience and feedback from multiple users, it was revised to more accurately reflect current literature and practice and to achieve balance among the subscales. The *Health-Promoting Lifestyle Profile II* continues to measure health-promoting behavior, conceptualized as a multidimensional pattern of self-initiated actions and perceptions that serve to maintain or enhance the level of wellness, self-actualization and fulfillment of the individual. The 52-item summated behavior rating scale employs a 4-point response format to measure the frequency of self-reported health-promoting behaviors in the domains of health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations and stress management. It is appropriate for use in research within the framework of the Health Promotion Model (Pender, 1987), as well as for a variety of other purposes.

The development and psychometric evaluation of the English and Spanish language versions of the original instrument have been reported in:

- Walker, S. N., Sechrist, K. R., & Pender, N. J. (1987). The Health-Promoting Lifestyle Profile: Development and psychometric characteristics. *Nursing Research*, *38*(2), 76-81.
- Walker, S. N., Volkan, K., Sechrist, K. R., & Pender, N. J. (1988). Health-promoting lifestyles of older adults: Comparisons with young and middle-aged adults, correlates and patterns. *Advances in Nursing Science*, *11*(1), 76-90.
- Walker, S. N., Kerr, M. J., Pender, N. J., & Sechrist, K. R. (1990). A Spanish language version of the Health-Promoting Lifestyle Profile. *Nursing Research*, *39*(5), 268-273.

Copyright of all versions of the instrument is held by Susan Noble Walker, EdD, RN, FAAN, Karen R. Sechrist, PhD, RN, FAAN and Nola J. Pender, PhD, RN, FAAN. The original *Health-Promoting Lifestyle Profile* is no longer available. You have permission to download and use the HPLPII for non-commercial data collection purposes such as research or evaluation projects provided that content is not altered in any way and the copyright/permission statement at the end is retained. The instrument may be reproduced in the appendix of a thesis, dissertation or research grant proposal. Reproduction for any other purpose, including the publication of study results, is prohibited.

A copy of the instrument (English and Spanish versions), scoring instructions, an abstract of the psychometric findings, and a list of publications reporting research using all versions of the instrument are available for download.

Sincerely,



Susan Noble Walker, EdD, RN, FAAN
Professor Emeritus

Appendix I
Daily Tracking Record

DAILY TRACKING RECORD

PLEASE DO NOT WRITE YOUR NAME ON THIS FORM

ID# _____

Instructions:

1. Please record your steps **each day for 14 consecutive days** by writing the total number in (Column A) – Activity Tracker Readings
2. Please record the number of times you attend any church groups or classes on each day **during the 14 consecutive day period** below by marking an (X) in the boxes under the corresponding columns: (Column B) – Sunday School; (Column C) – Bible Study; (Column D) – Women’s Bible Study; (Column E) – Ministry Meeting
3. Please list other ministries you attended and record the number of times you attended these ministries in (Column F) – Other (specify)

Date	(A) Activity Tracker Readings	(B) Sunday School	(C) Bible Study	(D) Women’s Bible Study	(E) Ministry Meeting	(F) Other (specify)
SUNDAY ___/___/___						Ministry:
MONDAY ___/___/___						Ministry:
TUESDAY ___/___/___						Ministry:
WEDNESDAY ___/___/___						Ministry:
THURSDAY ___/___/___						Ministry:
FRIDAY ___/___/___						Ministry:
SATURDAY ___/___/___						Ministry:
PLEASE DO NOT WRITE BELOW THIS LINE						
TOTAL						

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Biographical Information

Sharon Taylor Johnson is a clinical instructor at the College of Nursing and Health Innovation at the University of Texas at Arlington. She graduated from Georgia Baptist College of Nursing at Mercer University where she received her Bachelor of Science in Nursing and Master of Science in Nursing Education degrees in 2005 and 2007 respectively.

Prior to relocating to the state of Texas, Ms. Johnson was employed as the Director of Professional Practice at WellStar Cobb Hospital in Austell, Georgia and as a Faith Community Nurse at Allen Temple AME Church in Woodstock, Georgia. In 2011 and while pursuing her doctoral degree, Ms. Johnson joined the College of Nursing at the University of Texas at Arlington as a graduate teaching/research assistant. In 2014, she joined the College of Nursing and Health Innovation where she teaches nursing students in the Clinical Nursing Foundations course.

Ms. Johnson has presented at numerous professional nursing conferences at local, regional, and national levels. In 2014, she collaborated on a research project with colleagues at the College of Nursing and Health Innovation, and the manuscript entitled "Development of a valid and reliable evaluation instrument for undergraduate nursing students during simulation" was published May 2015.

Ms. Johnson has a passion for exploring the relationship between spirituality and health. Her future plans are to develop a program of research on faith-based health promotion strategies regarding physical activity.