Georgia State University
ScholarWorks @ Georgia State University

Nursing Dissertations School of Nursing

8-13-2009

The Relationship betwen Perceived Wellness and Stages of Change for Exercise among Rural African American Women

Imani Carolyn Goodwin

Follow this and additional works at: http://scholarworks.gsu.edu/nursing_diss

Recommended Citation
Goodwin, Imani Carolyn, "The Relationship betwen Perceived Wellness and Stages of Change for Exercise among Rural African American Women" (2009). *Nursing Dissertations.* Paper 9.

This Dissertation is brought to you for free and open access by the School of Nursing at ScholarWorks @ Georgia State University. It has been accepted for inclusion in Nursing Dissertations by an authorized administrator of ScholarWorks @ Georgia State University. For more information, please contact scholarworks@gsu.edu.

ACCEPTANCE

This dissertation, THE RELATIONSHIP BETWEEN PERCEIVED WELLNESS AND STAGES OF CHANGE FOR EXERCISE AMONG RURAL AFRICAN AMERICAN WOMEN by Imani Carolyn Goodwin was prepared under the direction of the candidate's dissertation committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Nursing in the Byrdine F. Lewis School of Nursing in the College of Health and Human Sciences, Georgia State University.

Dee M. Baldwin

Dee M. Baldwin, RN, PhD, FAAN
Committee Chairperson

Laura P. Kimble

Laura P. Kimble, RN, PhD
Committee Member

Robin E. Pattillo, RN, PhD
Committee Member

Judith L. Wold, RN, PhD
Committee Member

2/27/09

Date

This dissertation meets the format and style requirements established by the College of Health and Human Sciences. It is acceptable for binding, for placement in the University Library and Archives, and for reproduction and distribution to the scholarly and lay community by University Microfilms International.

Laura P. Kimble

Laura P. Kimble, RN, PhD Associate Professor, Acting for
Cecelia Gatson Grindel, RN, PhD, FAAN
Associate Director for Granduate Nursing Programs
Byrdine F. Lewis School of Nursing

Barbara Woodring

Barbara Woodring, RN, EdD.
Director, Byrdine F. Lewis School of Nursing

AUTHOR'S STATEMENT

In presenting this dissertation as a partial fulfillment of the requirements for an advanced degree from Georgia State University, I agree that the Library of the University shall make it available for inspection and circulation in accordance with its regulations governing materials of this type. I agree that permission to quote from, to copy from, or to publish this dissertation may be granted by the author or, in her absence, by the professor under whose direction it was written, or in her absence, by the Associate Director for Graduate Programs in Nursing, Byrdine F. Lewis School of Nursing, College of Health and Human Sciences. Such quoting, copying, or publishing must be solely for scholarly purposes and will not involve potential financial gain. It is understood that any copying from or publication of this dissertation which involves potential financial gain will not be allowed without written permission from the author.

Imani Carolyn Goodwin

Imani Carolyn Goodwin

NOTICE TO BORROWERS

All dissertations deposited in the Georgia State University Library must be used in accordance with the stipulations prescribed by the author in the preceding statement.

The author of this dissertation is:

Imani Carolyn Goodwin
100 Baldwin Drive
Enterprise, AL 36330

The director of this dissertation is:

Dr. Dee M. Baldwin
Byrdine F. Lewis School of Nursing
College of Health and Human Sciences
Georgia State University
P.O. Box 4019
Atlanta, GA 30302-4019

Users of this dissertation not regularly enrolled as students at Georgia State University are required to attest acceptance of the preceding stipulations by signing below. Libraries borrowing this dissertation for the use of their patrons are required to see that each user records here the information requested.

NAME OF USER	ADDRESS	DATE	TYPE OF USE (EXAMINATION ONLY OR COPYING)

VITA

Imani Carolyn Goodwin (formerly Carolyn Andrews)

ADDRESS: 100 Baldwin Drive
Enterprise, AL 36330

EDUCATION:

Ph.D.	2009	Georgia State University Atlanta, Georgia
Certificate	1996	University of Alabama (Family Nurse Practitioner) Huntsville, AL
M.S.N.	1994	Troy University Troy, AL
B.S.N.	1990	Troy University Troy, AL
A.S.N.	1984	George Wallace Community College Dothan, AL

PROFESSIONAL EXPERIENCE:

2005	Family Nurse Practitioner (part-time) Louisville Clinic	Louisville, AL
2004	Family Nurse Practitioner (part-time) Crenshaw Community Hospital	Luverne, AL
2002-2003	Family Nurse Practitioner Florala Memorial Hospital	Florala, AL
1997-2001	Family Nurse Practitioner VA Community Outpatient Clinic	Dothan, AL
1984-1997	Southeast Alabama Medical Center Registered Nurse	Dothan, AL

TEACHING EXPERIENCE:

2001-Present	Assistant Professor Troy University School of Nursing	Troy, AL
1995	BSN Clinical Instructor (Adjunct) Troy University School of Nursing	Troy, AL
1991	Practical Nurse Clinical Instructor Wallace College	Dothan, AL

PROFESSIONAL LICENSES AND CERTIFICATIONS:

1997-Present	American Nurses Credentialing Center (Family Nurse Practitioner)
1984-Present	Alabama Board of Nursing (Registered Nurse)

PROFESSIONAL MEMBERSHIPS:

2008-Present	Vice President – Iota Theta Chapter of Sigma Theta Tau International
2007-Present	Delegate – Iota Theta Chapter of Sigma Theta Tau International
2006-2007	Chair – ASNA Advanced Practice Council
2006-2007	Member – ASNA Board of Directors
2006-Present	Member – Nurse Practitioner Alliance of Alabama
2004-Present	Member – Southern Nursing Research Society
2002-2007	Counselor – Iota Theta Chapter of Sigma Theta Tau International
2002-Present	Member – ASNA Advanced Practice Council
2002-Present	Member – Iota Theta Chapter of Sigma Theta Tau International
1990-Present	Member – American Nurses Association
1990-Present	Member – Alabama State Nurses Association (ASNA)

PROFESSIONAL AWARDS AND GRANTS:

2003	African-American Fellowship Award – Troy University, $45,000.
2007	Faculty Development Grant – Troy University, $750.

PUBLICATIONS:

Goodwin, I. C., & Vardaman, S. (2008). International nursing students' perception of the nursing curriculum at an American university (Abstract). *The Southern Online Journal of Nursing Research*, *8*(4).

Goodwin, I. C. (2007). Guidelines for care of the woman 40 years of age and older. *The Alabama Nurse, 34*(3), pg. 5.

Goodwin, I. C. (2007). Rural African American women's perception of exercise. *The Alabama Nurse, 34*(2), pg 18-19.

Andrews, C. (2006). Rural African American women's perception of exercise (Abstract). *The Journal of the Alabama Academy of Science, 77*(2), pg. 95.

Andrews, C. (2006). Rural African American women's perception of weight (Abstract).*The Journal of the Alabama Academy of Science, 77*(2), pg 96.

Andrews, C., & Baldwin, D. (2005) African American women's perception of weight and exercise (Abstract).*Circulation, 111*(4), pg. E-75 (Electronic Version).

PRESENTATIONS:

Goodwin, I. C. (2008). American College of Nurse Practitioners 2008 National Clinical Conference, Nashville, TN – Poster Presentation: The Transtheoretical Model of Behavior Change and the Primary Care Nurse Practitioner

Goodwin, I. C. (2008). Mississippi Delta Rural Health Care Training Partnership 2nd Annual Health Care Conference, Clarksdale, MS – Paper Presentation: Weight Perceptions of Rural Alabama African American Women

Goodwin, I. C. (2007). Minority Women's Health Summit, Washington, DC – Paper Presentation: Rural African-American Women's Perception of Weight

ABSTRACT

THE RELATIONSHIP BETWEEN PERCEIVED WELLNESS AND STAGES OF CHANGE FOR EXERCISE AMONG RURAL AFRICAN AMERICAN WOMEN

by

IMANI CAROLYN GOODWIN

Cardiovascular disease (CVD) is the leading cause of death among women in the US, and African American women (AAW) have a disproportionately high rate of deaths from CVD. Physical inactivity plays a major role in CVD development. It has been reported that some rural women have low rates of physical activity; 39% of White women and 57% of women of color are reported to be physically inactive. Rural AAW have a high mortality and morbidity rate related to CVD and a high rate of physical inactivity.

The purpose of this study was to describe rural AAW's perception of wellness in conjunction with their stage of change for engaging in exercise. A questionnaire was designed to obtain demographic information and reliable and valid questionnaires were used to measure perceived wellness and current stage of change for exercise. Using a descriptive, cross-sectional design, a convenience sample of 162 rural AAW was recruited from four rural churches in Selma, Alabama. A one-time meeting was conducted and questionnaires were completed by the participants.

Statistical analyses including independent samples t-tests and one-way and two-way ANOVA's were conducted to determine if there were associations among demographic characteristics, self-reported presence of CVD, perceived wellness, and stage of change for exercise. Findings indicated that there was no relationship between

perceived wellness and stages of change for exercise among rural AAW; no relationship was found between perceived wellness and CVD, or CVD and stage of change for exercise. However, 51.3% of the sample reported they were physically active, and 21.6% planned to increase their activity within 30 days. Annual household income and employment status were positively correlated with perceived wellness, suggesting a greater sense of wellness is related to income and employment among these rural AAW. These findings have implications for nursing practice in the areas of facilitating health promoting behaviors and development of exercise and wellness programs for rural AAW.

THE RELATIONSHIP BETWEEN PERCEIVED WELLNESS AND STAGES OF CHANGE FOR EXERCISE AMONG RURAL AFRICAN AMERICAN WOMEN

by

IMANI CAROLYN GOODWIN

A DISSERTATION

Presented in Partial Fulfillment of Requirements for the
Degree of Doctor of Philosophy in Nursing in the Byrdine F. Lewis
School of Nursing in the College of Health and Human Sciences
Georgia State University

Atlanta, Georgia

2009

Copyright by

Imani Carolyn Goodwin

2009

DEDICATION

I dedicate this work to my loving daughter, SheRon, who has always believed in me and who provides me with unconditional love and encouragement, is always there when I need her, and who is and has always been the love of and a joy in my life.

I also dedicate this work in loving memory of my son, Mahari, who lives deep inside my heart and soul, as he has been with me throughout every step of this arduous journey. I will always love you.

ACKNOWLEDGEMENTS

I acknowledge the Lord, my God, whose presence provides me with guidance through all the trials and tribulations of my life. It is He who opens my eyes each day and He who enabled me to accomplish all of my goals and complete this research. Thank you, Lord, for everything.

I would also like to acknowledge the following that, in a myriad of ways, facilitated the development and completion of this dissertation:

The direction of my committee: Dr. Dee M. Baldwin, Chair; Dr. Laura P. Kimble; Dr. Robin E. Pattillo; and Dr. Judith L. Wold

The statistical assistance of Dr. Laura P. Kimble

The loving support of my family: Mother, SheRon, Connie, Jacqui, Reeshemah, James, Jelani, Tyrell, Desiree, Deborah, Angelique, Patsy, Aunt Cynthie, Aunt Daphne, Aunt Cleo, Uncle Fiorello, Beverly, Boykin, Mary, and Quiana

The financial support from: Troy University and Georgia State University

The encouragement of my friends: Adele, Angel, Blanche, Charlene, Cindy, Coach (CBT^2), Elle', Falcon, JoAnn, Joseph, Kaye, Latia, Laurie, "Lenny", Lester, "Lionel", Mary Helen, Marquetta, Michelle, Ray, Sheila, and Trinette

The emotional support from my colleagues: Amy, Bernita, Cathy, Cindy, Deborah, Debra, Diane, Donna, Jan, Janice, Judy, Kelly, Lillian, Mary, Patsy, Shellye, Sue, Susie, Teresa, Tina, and Dr. Diane Barron

The joy from my angels: Janell, Brooklyn, Sade', Khadeja, Nyjea, Josiah, Isaiah, and D'Asia

The help of my research assistants: Amy, Christy, Latersha, and Pam

The assistance and emotional support of my door opener: Geraldine

The blessings from: The pastors who welcomed me into their churches

And last but not least: The generosity of all my participants

TABLE OF CONTENTS

Section Page

List of Tables……..xviii

List of Figures……...xix

List of Abbreviations…….xx

Chapter

I. INTRODUCTION……...……1

Background……...…….. 1

Purpose…….3

Significance of the Problem…….3

Research Questions……..6

Definitions of Research Variables and Relevant Terms……..7

Independent Variables…….7

Dependent Variable ……8

Relevant Terms……9

Assumptions…….……..10

Theoretical Framework …….10

Neuman Systems Model……10

Transtheoretical Model of Behavior Change…….16

Summary……...…….19

II. REVIEW OF LITERATURE…….……...……21

Perceived Wellness……...…….21

Demographics……...…….25

Chapter Page

Physical Activity……...…….31

Cardiovascular Disease……...…….. 38

Lifestyle……...……. 38

Wellness…….40

Physical Activity……43

Rural Women…….45

Neuman Systems Model……51

Transtheoretical Model of Behavior Change…….……54

Summary…….……..….56

III. METHODOLOGY……58

Design……59

Sample……....59

Sample Selection……59

Inclusion Criteria……...60

Recruitment of Participants……60

Sample Size……61

Setting……62

Dallas County……62

Selma, Alabama…….62

Instrumentation…….……64

Perceived Wellness Survey……64

Chapter Page

Exercise: Stages of Change – Short Form……66

Demographic Information……68

Procedure…….……..69

Institutional Review Board……69

Training of Research Assistants……69

Identification of a Community Leader……..69

Data Collection Process……70

Data Analysis and Research Questions……72

Research Question 1……..72

Research Question 2……..72

Research Question 3……..73

Research Question 4……..73

Summary……..……. 74

IV. RESULTS……...…75

Description of the Sample……..76

The Relationship between Perceived Wellness and Stage of Change

for Exercise……..……..82

Research Question One…….……82

The Relationship between Cardiovascular Disease, Stage of Change

for Exercise, and Perceived Wellness……83

Research Question Two……83

Chapter Page

The Relationship between Cardiovascular Disease and

Stage of Change for Exercise…….……85

Research Question Three…….……..85

The Relationship between Demographic Variables and

Perceived Wellness and Stage of Change for Exercise…….……86

Research Question Four…….....86

Summary……..……..91

V. DISCUSSION……...…….....94

Overview of the Study……...……94

Major Findings……...……95

Sociodemographic Characteristics of the Sample……...……...95

Perceived Wellness and the Neuman Systems Model……...98

Stage of Change for Exercise and the Transtheoretical Model of

Behavior Change…….…….102

Cardiovascular Disease……..……. 107

Research Questions……..……109

Research Question One……...….109

Research Question Two……..…….109

Research Question Three……...……. 110

Research Question Four……...……110

Conclusions……..112

Limitations of the Study……...……112

Chapter Page

Implications for Nursing……..114

Nursing Practice……...115

Nursing Research…….115

Recommendations for Future Research……...116

Study Summary……116

REFERENCES……...….120

APPENDICES……...……..137

Appendix A: The Relationship of Perceived Wellness Scores and

Stages of Change for Exercise among Rural

African American Women Questionnaire……...……137

Appendix B: Letter of Introduction to Selma, AL Churches……..……..… .145

Appendix C: Advertisement Flyer……...146

Appendix D: Permission to use Perceived Wellness Survey…….…..147

Appendix E: Permission to use Exercise: Stages of Change……...148

Appendix F: Perceived Wellness Survey……152

Appendix G: Perceived Wellness Survey Research Scale Information

and Instructions……153

Appendix H: Exercise: Stages of Change – Short Form…….…….158

Appendix I: Georgia State University Institutional Review Board

Approval Letter……..…. 159

Appendix J: Letters Granting Permission to Use the Churches…….…..160

Section Page

Appendix K: Consent Form...…….....165

Appendix L: Physical Activity Participant Booklet…….168

Appendix M: Medications Reported……177

Appendix N: Characteristics of Churches One through Four……..182

LIST OF TABLES

Table Page

1. Frequency Counts and Percentages of Demographic Variables ……...……77

2. Descriptive Statistics for Total Perceived Wellness and Wellness Subscales……79

3. Frequency Counts and Percentages of Stage of Change and Cardiovascular Disease History Variables……80

4. Means and Standard Deviations for Total Perceived Wellness by Stages of Change for Exercise.……...……...82

5. Perceived Wellness Means and Standard Deviations by Stage of Change for Exercise with and without Cardiovascular Disease……84

6. Stage of Change and History of Cardiovascular Disease (CVD) …….....86

7. Chi-Square Results for Stage of Change with Income, Education, Marital Status, and Employment Status……87

8. Stages of Change and Age Means and Standard Deviations…….....88

9. Means and Standard Error of Means of Perceived Wellness as a Function of Income, Marital Status, and Employment Status.…….....90

LIST OF FIGURES

Figure Page

1. Goodwin's Conceptual Framework for Investigation of the Relationship between Perceived Wellness, Stage of Change for Exercise, Demographics, and History of CVD……19

LIST OF ABBREVIATIONS

AA	African American
AAW	African American women
AHA	American Heart Association
ANOVA	Analysis of Variance
ARIC	Atherosclerosis Risk in Communities Study
BMI	Body Mass Index
BRFSS	Behavioral Risk Factor Surveillance Survey
CHD	Coronary Heart Disease
COOP	Primary Care Cooperative Information Project
CVD	Cardiovascular Disease
DEES	Diet Exercise Efficacy Scale
DEOS	Diet Exercise Outcomes Scale
DHHS	U.S. Department of Health and Human Services
EAW	European American women
HDL	High-density Lipoprotein
HI	High Income
HPLP	Health-Promoting Lifestyle Profile
HTN	Hypertension
IRB	Institutional Review Board
LI	Low Income
LTEQ	Leisure-Time Exercise Questionnaire
MI	Myocardial Infarction

MOS	Medical Outcomes Study Short-Form General Health Survey
NAW	Native American women
NHANES	National Health and Nutrition Examination Survey
NSM	Neuman Systems Model
PI	Principal Investigator
PS	Planned Hip Replacement Surgery
PWS	Perceived Wellness Survey
RA	Research Assistant
SEP	Socioeconomic Position
SES	Socioeconomic Status
SOC	Stages of Change
SPSS	Statistical Package for the Social Sciences
TTM	Transtheoretical Model of Behavior Change
UES	Unplanned Emergency Surgery
WISEWOMAN	Well-Integrated Screening and Evaluation for Women Across the Nation

CHAPTER I

INTRODUCTION

Background

Over the last decade, there has been a decline in morbidity and mortality rates related to cardiovascular disease (CVD) in the United States (US). Yet, African American women (AAW) continue to have a disproportionately high rate of deaths from heart disease (Ma'At, Owens, & Hughes, 2002). These high mortality rates are due to modifiable risk factors and non-modifiable risk factors. Modifiable risk factors are associated with high-fat diets, obesity, tobacco abuse, hypertension, hyperlipidemia, and physical inactivity (American Heart Association [AHA], 2003; Burnette, Meilahn, Wing, & Kuller, 1998), and non-modifiable risk factors are associated with diabetes mellitus and family history (Diez-Roux, Northridge, Morabia, Bassett, & Shea, 1999; Gillum, Mussolino, & Madans, 1998). According to Diez-Roux et al., AAW have a greater number of risk factors for CVD in comparison to their male counterparts, yet AAW do not always perceive CVD as a problem or life threatening. This lack of perceived danger may be attributed to the age at which women receive CVD prevention information (Yawn, Wollan, Jacobsen, Fryer, & Roger, 2004), and the decision time they use to seek help for CVD-related problems (Morgan, 2005). For example, Yawn et al. found that women younger than 70 years of age were less likely to receive preventive information related to CVD after being hospitalized for myocardial infarction (MI) than those 70 years of age and older. Morgan found that the decision time to seek help for CVD-related

problems was longer among rural women than their male counterparts and these women did not always understand their susceptibility to CVD (Krummel, Humphries, & Tessaro, 2002). If women do not perceive CVD as a major concern, maintaining a healthy lifestyle, which includes increasing physical activity, may not be a priority in their health promoting behaviors. Health promotion is a behavior that is motivated by a desire to actualize human health potential and to increase well-being (Neuman, 2002; Pender, Murdaugh, & Parsons, 2002). O'Donnell (1989) defines health promotion as the art and science of assisting people with lifestyle changes which move them toward optimal health. For health promotion to be successful, a change in behavior is usually required.

Physical inactivity, a modifiable risk factor, is one of the lifestyle behaviors that can be changed in AAW to decrease their risk for CVD (Gubler, Gaskill, Fehrer, & Laskin, 2007; Hu et al., 2001). Data indicate that physical inactivity is seen in 39% of White women and 57% of women of color (Bedinghaus, Leshan, & Diehr, 2001). Despite the highly publicized benefits of maintaining an active lifestyle, some women, including rural AAW, have low rates of physical activity (Sanderson et al., 2003). Bezner, Adams, and Whistler (1999) argue that physical inactivity is related to wellness perceptions. Women who exercise more tend to have a greater positive perception of their health and wellness. To reduce CVD risk and improve AAW's mortality rates associated with CVD, studies that examine the relationship between AAW's current health behaviors, their intent to participate in physical activity, and their perception of health and wellness (perceived wellness) are greatly needed.

Purpose

The purpose of this study was to describe rural AAW's perception of wellness as it relates to their stage of change for exercise. This information was obtained by: 1) assessing the perceived wellness of a sample of rural AAW; 2) ascertaining their current stage of change for exercise; 3) determining if there was an association between their perceived wellness and stage of change for exercise; 4) determining if there was an association between stage of change for exercise and history of CVD; and 5) determining if there was an association between other demographic variables, perceived wellness, and stage of change for exercise. Understanding the association between perceived wellness and stage of change for exercise provides information about rural AAW's current health behaviors and whether there is a connection between these behaviors and their perceptions of wellness. Knowledge about this association will guide researchers in understanding health behaviors that lead to rural AAW's participation in physical activity. This information can facilitate the development of individual and population-specific interventions designed to eliminate the problem of physical inactivity and decrease the mortality and morbidity rates of CVD in rural AAW.

Significance of the Problem

The two main goals of Healthy People 2010 are to increase the years and quality of healthy life and to eliminate health disparities (U.S. Department of Health and Human Services [DHHS], 2000). These goals are believed to be accomplished by providing people with the assistance needed to gain motivation, knowledge, and opportunities to make informed decisions related to their health (DHHS). AAW have been identified as having a disproportionately high mortality and morbidity rate related to CVD and a high

rate of physical inactivity (AHA, 2002). Further, it has been determined that people residing in southern communities are more likely to be physically inactive (Martin et al., 2005) than those in other regions. According to Brownson, Eyler, King, Brown, and Sallis (2000), AAW report a higher rate of physical inactivity than their White counterparts, and women residing in rural settings are 33% more likely to be physically inactive than their urban counterparts. Yeager, Macera, and Merritt (1993) reported as age increased, the prevalence for sedentary behavior increased among women, with AAW having the highest rate (44.9%), compared to Caucasian women (29.5), and Hispanic women (36.4%). Similar findings continue to be reported with respect to a decline in physical activity as women age (Morbidity & Mortality Weekly Report, 2006; Sanderson et al., 2003).

Studies have also shown that education and income are directly correlated with physical inactivity (Brady & Nies, 1999; Speck & Harrell, 2003; Purath & Miller, 2005). Findings indicate that low socioeconomic position (SEP) is correlated with high levels of physical inactivity while low socioeconomic status (SES) is correlated with neighborhoods having low numbers of commercial physical activity-related facilities (Baltrus, Lynch, Everson-Rose, Raghunathan, & Kaplan, 2005; Powell, Slater, Chaloupka, & Harper, 2006). Incomes and more specifically SES of neighborhoods have been found to be indicators of physical activity, with higher income and higher neighborhood SES correlating with higher levels of physical activity (Nies, Reisenberg, Chruscial, & Artibee, 2003).

Tai-Seale (2003) found that a motivator to increasing physical activity was a belief in the benefits, while lack of time was seen as a barrier regardless of the individual

stage of change for exercise. Variables such as influence of others, weight control, stress reduction, and health concerns were other motivators identified in the literature (Young, Gittelsohn, Charleston, Felix-Aaron, & Appel, 2001).

Additional reasons cited in the literature for rural AAW's low participation in physical activity include lack of enjoyable scenery, less education, lack of seeing others exercise in their neighborhoods, less social support from friends and family, and increased caregiving responsibilities (Wilcox, Castro, King, Housemann, & Brownson, 2000). Limited access to physical activity facilities and lack of appropriate walking places were cited by Arcury et al. (2006) as reasons for decreased physical activity levels among rural older adults. Johnson and Nies (2005) cited cost, lack of discipline or time, and lack of motivation as barriers to rural AAW with respect to health-promoting behaviors. Other barriers included lack of child care, lack of an exercise partner, competing responsibilities, lack of space in the home, fatigue, and unsafe neighborhoods (Nies, Vollman, & Cook, 1999).

In summary, rural AAW have a disproportionately high rate of heart disease (Taylor, Hughes, & Garrison, 2002). Misperceptions still exist that CVD is not a real problem for women (AHA, 2006a). While it is understood that prevention of CVD should begin at an early age, the AHA (2003) reports that as age increases, the incidence for CVD and physical inactivity increases in this population. Research has consistently shown AAW as having a high rate of physical inactivity (Ainsworth, Irwin, Addy, Whitt, & Stolarczyk, 1999; Powell et al., 2006; Suminski, Petosa, Utter, & Zhang, 2002), yet this continues to be a problem within this population. Given these findings, rural AAW between 40 and 75 years of age were the target population of this study.

Health promoting behaviors, strategies that help people improve and maintain optimal health, were also addressed in this study. Optimal health is a balance of emotional, intellectual, physical, social, and spiritual well-being (O'Donnell, 2005).These behaviors included increased physical exercise and promotion of wellness. By gaining an understanding of rural AAW's health promotion behaviors, individual and population-specific interventions have a greater chance of helping these women to become successful in increasing their physical activity levels.

Information obtained from the current study provides documentation of rural AAW's self-reported participation in physical activity in relation to their perceived wellness. A description of the role wellness plays in physical activity is provided by comparing women with and without a history of CVD. By providing this perspective, the study findings will be helpful with planning interventions aimed at assisting rural AAW with increasing their physical activity in an effort to promote healthy behaviors, as well as address both of the Healthy People 2010 goals for this population.

Research Questions

The following research questions provided guidance for this study:

(1) Is there a significant relationship between perceived wellness and the individual AAW's stage of change for exercise?

(2) Is there a significant relationship between self-reported history of CVD, perceived wellness, and the individual AAW's stage of change for exercise?

(3) Is there a significant difference in the stage of change for exercise between AAW who self-report no history of CVD and those who self-report history of CVD?

(4) Does age, income, education, marital status, or employment status significantly affect perceived wellness and stage of change for exercise among AAW?

Definitions of Research Variables and Relevant Terms

Independent Variables

Stage of change was the major independent variable. Other independent variables included age, income, education, marital status, employment status, number of dependent children living at home, and cardiovascular disease history. Below is a definition for each as they were used in this research study.

Stage of change is a process involving progression through a series of six stages (precontemplation, contemplation, preparation, action, maintenance, and termination) in a spiral pattern. It refers to an individual's readiness to make a change in behavior. This behavior change is to avoid unhealthy habits and to acquire healthy habits. In this study, the behavior change was specifically in relation to increasing physical activity (as physical inactivity is the unhealthy habit). The purpose of the behavior change is to promote health (Prochaska, DiClemente, & Norcross, 1992), which can be accomplished by increasing physical activity.

Age was self-reported by the participant in years.

Income was self-reported household income for the year 2006 from all sources from all persons living with the participant. Categories were delineated as less than $10,000; $10,000 to 19,999; $20,000 to $29,999; $30,000 to $39,999; $40,000 to $49,999; and $50,000 or more.

Education was the self-reported highest education completed. This variable is defined as no high school, some high school, high school graduate, some college, or college graduate.

Marital status was self-reported as single, married, divorced/separated, or widowed.

Employment status was self-reported as unemployed, employed part-time (less than 35 hours a week), employed full-time (more than 35 hours a week), or retired.

Number of dependent children was self-reported in terms of number and ages of children living at home.

History of cardiovascular diseases was self-reported. Categories were delineated as history or diagnosis of heart disease; history or diagnosis of hypertension (high blood pressure); history or diagnosis of hyperlipidemia (high cholesterol); history or diagnosis of other problems (with an area to write in the disease or diagnosis); or none of the above.

Dependent Variable

Perceived wellness was the dependent variable. The NSM guided the perceived wellness portion of the study. A definition follows for this variable as it was used in this study.

According to Neuman (2002), wellness, which encompasses the client's perception, is the interacting parts of the client system (which includes the sociocultural, developmental, physiological, spiritual, and psychological variables) maintaining harmony and stability with the whole system. This dynamic state of harmony is related to the client system's ability to cope with internal and external environmental stressors to attain, maintain, or retain optimal health.

Relevant Terms

Relevant terms refer to terms that are frequently seen throughout this research report. There are several relevant terms that are defined for clarification. They include African American women, physical activity, rural county, rural African American women, regular exercise, and health promotion.

African American women were self-identified Black American women of African ancestry (American Heritage College Dictionary, 2002).

A rural county was broadly defined, using the Office of Management and Budget's 1993 definition, as a territory that is outside of a metropolitan area and includes no city with 50,000 or more residents (U. S. Department of Agriculture, 2006).

Physical activity was defined as leisure-time activity that is performed for 30 minutes a day at least five days a week (DHHS, 2000).

Regular exercise was defined as a plan of physical activity, which includes aerobics, bicycling, brisk walking, rowing, swimming, etc., to increase physical fitness. This activity is performed between three (3) and five (5) times a week with sessions lasting between 20 and 60 minutes. The level of exercise is effective when respiratory rate increases and the person breaks into a sweat, but it does not have to be painful (Cancer Prevention Research Center, 1991).

Rural African American women were defined as self-identified Black American women of African ancestry residing in a rural county.

Health Promotion referred to a conscious effort on the part of an individual to maintain a lifestyle that promotes a balance between emotional, intellectual, physical,

social, and spiritual well-being (O'Donnell, 2005). This lifestyle includes strategies for remaining physically active and maintaining wellness.

Assumptions

There were four assumptions associated with this descriptive study. The first one was that a self-report instrument is useful in obtaining knowledge about AAW's perceived wellness, stage of change for exercise, and demographic data. The second assumption was that the participants answered all questions accurately and honestly. The third assumption was that AAW were self-identified according to the definition provided above and no women were from any other ancestry. The fourth assumption was that these rural AAW were physically capable of exercising without restrictions or assistive devices (such as canes, walkers, etc.).

Theoretical Framework

This study integrated a systems model and a change process model to explore the relationship between wellness perceptions and the stage of human change. The aim of this research was to describe AAW's perception of wellness in conjunction with their stage of change for exercise. The client system concept of the NSM and the stage of change construct of the TTM provided the theoretical frameworks for this study.

Neuman Systems Model

Betty Neuman's Systems Model is a synthesis of knowledge from other disciplines combined with her own clinical nursing expertise and philosophical beliefs. It is based on the general systems theory (von Bertalanffy, 1976) and living organisms are reflected as open systems. "The content of the model draws from and is related to Gestalt,

stress, and dynamically organized systems theories (de Chardin, 1955; Cornu, 1957; Edelson, 1970; Lazarus, 1981, 1999; Selye, 1950)" (Neuman, 2002, p. 12) .

There are 10 major concepts in the current version of the NSM. These major concepts include wholistic approach, open system, environment, created environment, client system, wellness and illness, stressors, degree of reaction, prevention as intervention, and reconstitution (Neuman, 2002). An explanation for each concept follows.

Wholistic approach regards the client as an open system interacting with the environment. Open system (which includes feedback, function, entropy, input and output, negentropy, and stability) is regarded as the exchange of information energy within the complex open system; the basic components are stress and reaction to stress. Environment is composed of both external and internal forces being affected by the client and those that affect the client at any given time. According to Neuman, wellness and illness is considered a continuum and is determined by the degree to which the client system's needs are met. Wellness occurs when the client system needs are met, a state of harmony. Illness results when needs are unmet, a state of disharmony. Stressors are stimuli within the client system boundaries that produce tension; these stimuli may be intrapersonal (within the individual or client), interpersonal (between one or more individuals), or extrapersonal (outside the individual). Degree of reaction refers to the client-required energy utilized to adjust to stressors. Prevention as intervention refers to the purposeful actions that occur before or after penetration of protective lines of defense or resistance. These actions help the client attain, maintain, and/or retain stability of the

system, and are considered as primary, secondary, and tertiary. Reconstitution refers to the system's adaptation to external and internal environmental stressors (Neuman, 2002).

The client system, the major concept used in this study, includes the five variables which are developmental, physiological, psychological, sociocultural, and spiritual. Neuman (2002) defines the five variables as follows:

Developmental refers to activities and processes that are age-related and includes areas such as educational achievement and career development. Physiological refers to internal function and bodily structure, and includes physical fitness, nutrition, and biological functions. Psychological refers to internal and external interactive environmental effects and mental processes, and includes emotional ability and stress management. Spiritual refers to positively directed energy used by the mind and body as well as spiritual beliefs and influences, and includes a sense of love and hope. Sociocultural refers to influences and social-cultural conditions which include support for and from family and friends as well as a feeling of connection within the culture and community.

The basic structure refers to the central core which encompasses the five variables described above and represents the energy resources of the client system (client survival factors). In modeling this concept, the central core is surrounded by three (3) circles of broken lines known as the lines of resistance. The lines of resistance are enclosed by a solid circle known as the normal line of defense. The normal line of defense is surrounded by a broken-line circle known as the flexible line of defense. The flexible line of defense represents the outer boundary of the client system and acts as the buffer system that protects the client's stable or normal state (Neuman, 2002).

The purpose of the lines of defense and resistance is to help maintain the system at its optimal state of wellness. The five client variables are in constant interaction with each other as well as with the external and internal environment. The central core, or basic energy, is protected by these lines (both defense and resistance) to maintain system stability (Neuman, 2002).

The flexible line of defense, or the outermost broken circle, acts as the buffer system that protects the client's stable or normal state. The role of the flexible line of defense is to protect the central core from short-term or immediate environmental stressors, and help the client maintain the usual wellness condition. The role of the normal line of defense, which is activated when a stressor penetrates the flexible line of defense, is to assist with client-system adjustments to long-term stressors. It is considered to be composed of the client's lifestyle influences and coping patterns (Neuman, 2002). As implied by its role, this particular line is developed over time, and it "…defines the current health status of the client system…" (Neuman, p. 19). System stability (the client's state of wellness) is maintained by the interactions of the five variables and the environment. If this line of defense fails, one or more stressors are able to penetrate. The system then destabilizes and deviates from the usual wellness condition (Neuman).

Once destabilization occurs, the lines of resistance (consisting of external and internal resources) are activated. As long as these external and internal resources are able to adequately supply the needed energy, the system returns to its usual state of wellness. If the resources are inadequate, the system's state of wellness is decreased and illness or death results (Neuman, 2002). "By assessing the effects of all five client system variables in interaction with the environment, the client system's health status becomes known…"

(Neuman, p. 19), and client-specific appropriate interventions can be developed to facilitate the client system's return to the optimal state of wellness.

The NSM is concerned with the whole person and variables affecting the person's response to environmental stress. The person is regarded as a client or client system. This wholistic and multidimensional perspective considers the entire context of the client, by taking into account all the variables that affect an individual at any given time (Neuman, 2002). The client system concept operates on the premise that the client is viewed as a whole and it encompasses the five variables simultaneously. The client system is in constant interaction with the environment and works toward maintaining stability, a sense of wellness (Neuman). Using the NSM as a theoretical base, it can be hypothesized that if AAW are physically fit, emotionally stable, and managing stress adequately, they are capable of participating in regular exercise. When AAW experience a sense of love and hope, a sense of connection within the culture and community, and feel intellectually challenged, they are capable of engaging in health promotion behaviors in an effort to maintain their optimal state of wellness. Specifically, the client system concept variables provide a representation of the individual rural AAW's wellness perception.

Adam (as cited in Peterson & Bredow, 2009) stated that research can be guided by conceptual models. Nursing research examines phenomena that are of interest to nursing and these phenomena are explained by nursing conceptual models. In the current study, one of the phenomena of interest encompassed the five (5) client-system variables. With a focus on wellness, the NSM provided a framework to view the AAW in a wholistic, systematic manner. Understanding the five variables provides an awareness of all the facets of the client's state of wellness (Crawford & Tarko, 2002).

Similar to the NSM client system concept, perceived wellness is described by Adams, Bezner, and Steinhardt (1997) as multidimensional and implies a conscious effort on the part of the individual to obtain or maintain a state of wellness. Perceived wellness also implies that the individual understands the need to establish and maintain health promoting behaviors (Burke et al., 2001; Krummel et al., 2002). To assess perceived wellness in this study, the Perceived Wellness Survey (PWS) was utilized. A description of the PWS dimensions and their relationship to the NSM client system concept follows:

The physical wellness dimension refers to a positive perception and expectation of physical health (Adams, Bezner, & Steinhardt, 1997), which is similar to the client system concept physiological variable. Psychological wellness is a general perception that positive outcomes will be experienced to circumstances and events of life (Adams, Bezner, & Steinhardt), and is similar to the client system concept psychological variable. Social wellness refers to a perception of available support from family and friends when needed as well as perception of providing valued support (Adams, Bezner, & Steinhardt), and is similar to the client system concept sociocultural variable. Emotional wellness refers to possessing a positive sense of self-regard and secure identity (Adams, Bezner, & Steinhardt), and is similar to the client system concept psychological variable. Intellectual wellness refers to a perception of being energized internally by activity that is intellectually stimulating (Adams, Bezner, & Steinhardt), and is similar to the client system concept developmental variable. Spiritual wellness refers to a perception of having positive meaning and a purpose in life; belief in a unifying force; interactive force between the body and mind (Adams, Bezner, & Steinhardt), and is similar to the client system concept spirituality. Due to the similarities between the NSM client system

concept variables and the dimensions of the PWS, the NSM was the framework that guided the perceived wellness portion of the study.

Transtheoretical Model of Behavior Change

Developed in the early 1980's by Prochaska and DiClemente, TTM was originally designed as a way of describing addictive behavior changes (Prochaska, Norcross, & DiClemente, 1994). The TTM has since been used in medical services and for health promotion. Studies initially focused on smoking and were broadened, for example, to include studies of alcohol abuse, substance abuse, and physical activity (Prochaska, Redding, & Evers, 2002).

The TTM works on the premise that change does not occur at one time, but rather consists of a series of stages. This model describes a sequential process, and individuals tend to go from one stage to another in a spiral, rather than cyclic, pattern (Prochaska, Norcross, & DiClemente, 1994). An individual may go from one stage to another and then return to a previous stage before moving on to the next. It is suggested that by recycling through the stages, the individual evolves to a higher level as he learns from his experiences (Cassidy, 1999; Prochaska, Velicer, Guadagnoli, Rossi, & DiClemente, 1991).

The TTM consists of four core constructs. They are the stages of change (SOC), processes of change, decisional balance, and self efficacy. The six stages of change that have been identified are precontemplation, contemplation, preparation, action, maintenance, and termination (Prochaska, 2001). These stages are divided into pre-action (precontemplation, contemplation, and preparation) and action (action, maintenance, and termination) categories (Burbank, Reibe, Padula, & Nigg, 2002). The SOC, the only

construct from the TTM, was used in this study and provided guidance for the stages of change portion.

The first stage, Precontemplation, identifies the individual who is not giving serious thought to making a change in behavior within the next six months. People in this stage may be under-informed or uninformed about their unhealthy behavior and the consequences associated with this behavior. Others in this stage may have tried to change in the past, but have not been successful. People in this stage avoid thinking, reading, or talking about their unhealthy behavior. In the Precontemplation stage, people tend to overestimate the cost and underestimate the benefit of changing their behavior, and some may not be conscious of the mistakes they are making (Prochaska, 2001).

Stage two, Contemplation, occurs when one considers making a change in a particular behavior within the next six months. People in this stage are aware of the advantages and disadvantages of changing their behavior. As they begin to contemplate making a change, they begin to have an increased awareness of the costs of changing. Ambivalence is seen as they attempt to balance the costs and benefits of changing (Prochaska, 2001).

Preparation, stage three, occurs when an individual plans to make a change in the behavior within the next month. A significant action has been taken by the person in this stage in the past year. A plan of action has been developed. It may include talking with a health care provider or counselor, purchasing a book with self-help tips, or simply relying on an approach of self-change (Prochaska, 2001).

Action is the fourth stage in this model. Action occurs when one is actively engaging in the desirable behavior and has been doing so for six months. In this stage,

action and behavior change become one and the same, as one is able to observe the action (Prochaska, 2001).

The fifth stage in this model is Maintenance. It is believed that this stage occurs when the individual continues the desirable behavior and is actively trying to prevent relapse. People in this stage possess a confidence that enables them to avoid relapse. This stage lasts from six months to five years (Prochaska, 2001).

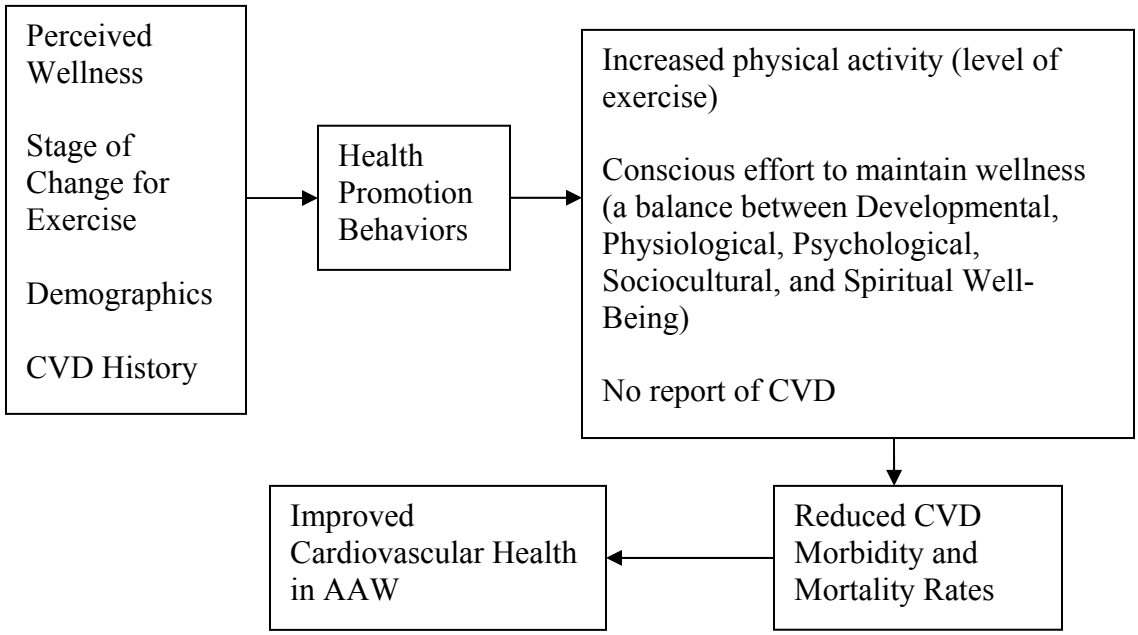
The sixth and final stage is called Termination. It is described as the point in which the individual is without temptation and self-efficacy has reached 100%. In this stage, people are confident they will not return to their unhealthy behaviors. It seems as though they never had the unhealthy behavior in the past (Prochaska, 2001).

In summary, two models were utilized in this study. The NSM's client system concept provided guidance for the perceived wellness portion of the study. The TTM's stage of change construct provided guidance for the stage of change portion of the study. Together, these two models provided the theoretical framework for the study.

Figure 1 depicts a visual representation of the variables for this study. It was conceptualized that perceived wellness, stage of change for exercise, demographics, and report of CVD will influence rural AAW's health promotion behaviors. These health promotion behaviors include rural AAW's perception of wellness and their willingness to participate in physical activity such as a planned exercise program. If rural AAW are willing to change their lifestyle by participating in health promotion behaviors, then this desire to change could lead to positive outcomes such as increased physical activity and a conscious effort to maintain optimal health and wellness. These positive health outcomes

have the potential to result in reduced CVD mortality and morbidity rates which could ultimately improve the cardiovascular health of rural AAW.

Figure 1



Goodwin's conceptual framework for investigation of the relationship between perceived wellness, stage of change for exercise, demographics, and history of CVD

Summary

Cardiovascular disease, previously believed to be an issue related to men, not women, remains the leading cause of death among women in the US (Bedinghaus et al., 2001; and Finkelstein, Troped, Will, & Palombo, 2002). Physical inactivity has been identified as one of the contributing factors to CVD (AHA, 2003). AAW have a disproportionately high rate of deaths from heart disease (Ma'At et al., 2002), as well as a disproportionately high rate of physical inactivity (AHA, 2002). The purpose of this study was to describe rural AAW's perception of wellness as it relates to their stage of change for exercise and their demographics. This was accomplished by: 1) assessing

perceived wellness of a sample of rural AAW; 2) ascertaining their current stage of change for exercise; 3) determining if there was an association between their perceived wellness and stage of change for exercise; 4) determining if there was an association between stage of change for exercise and history of cardiovascular disease; and 5) determining if there was an association between other demographic variables, perceived wellness, and stage of change for exercise. The client system concept of the NSM and the stage of change construct of the TTM provided the theoretical frameworks for this study.

CHAPTER II

REVIEW OF LITERATURE

The review of literature will be presented in sections. Each section is organized around the study variables (perceived wellness, demographics, physical activity, and cardiovascular disease) and rural African American women (AAW). Other sections include studies pertinent to the theoretical framework, the Neuman Systems Model (NSM) and the Transtheoretical Model of Behavior Change (TTM). The aim of this chapter is to present, through selective references to the literature, a clearer understanding of the study variables, rural AAW, and the theoretical framework.

Perceived Wellness

Wellness has been described as an individual's conscious effort to maintain optimal health (Neuman, 2002), and optimal health has been described as a balance of emotional, intellectual, physical, social, and spiritual well-being (O'Donnell, 2005). This conscious effort provides a general picture of health-promoting behaviors which are based on the cumulative experiences of the individual (Sinclair, 2004). Health promotion behaviors for this study include such things as maintaining physical activity and promoting wellness. The next five studies relate to perceived wellness/wellness and health promotion behaviors.

First, Bezner, Adams, and Whistler (1999) conducted a study to explore the relationship between physical activity and perceived wellness, using the Perceived Wellness Survey (PWS) as a measuring tool. A convenience sample of 243 hospital

employees was recruited of which 195 were women. Race information was reported as Caucasian, 203; Hispanic, 13; African Americans, 11; other, 10; and Asian, 4. Data were obtained from self-administered questionnaires and indicated there is a relationship between quantity of physical activity and measures of well-being. The researcher concluded that the more one exercises, the greater their perceived wellness.

Second, Adams, Bezner, Drabbs, Zambarano, and Steinhardt (2000), utilizing the PWS along with three other instruments, conducted a study to conceptualize and measure the spiritual and psychological dimensions of wellness. A convenience sample consisted of 112 undergraduate students enrolled in a health education class at a university in Austin, TX, of which 91 were women. Self-administered questionnaires were distributed to these students in a classroom setting. Overall wellness was found to be influenced by psychological and spiritual dimensions. This means the greater sense of love and hope (spirituality) and emotional stability including adequate stress management (psychological), the greater the perception of wellness.

In an observational study at a private not-for-profit hospital, Angard, Chez, and Young (1998) sort to determine if women employees were more attuned to aspects of disease prevention, personal health, and wellness. Women between 39 and 60 years of age were invited to participate in this study, which included a 20-page self-administered health-risk appraisal. Other areas assessed included vital signs, blood work (comprehensive metabolic panel, cardiac profile, and complete blood count), and consultations with specialists related to breast self-examination, fitness, nutrition, and psychosocial/wellness behaviors. Rather than perform a statistical analysis, the data were hand collected and analyzed. With regard to physical activity, 22 of the 60 participants

reported moderate (n = 18) or vigorous (n = 4) exercise more than twice weekly. Findings from this study indicate though these women may possess a knowledge and awareness of the importance of health-promoting behaviors, they did not appear to take on the responsibility of maintaining their own well-being and health.

Next, James, Hudson, and Campbell (2003) utilized church-going African American (AA) participants in a two-part descriptive study to examine physical activity. Part one of the study consisted of six focus group sessions conducted in two (2) different rural AA churches in North Carolina. The sample of 45 (16 men, 29 women) participated in one (1) of six (6) sessions. The purpose of the discussion was to identify knowledge and perceptions of healthy behaviors, specifically physical activity. Data were obtained from a baseline survey from participants in a church-based research study designed to promote colorectal cancer prevention. Part two of the study consisted of telephone surveys which were conducted after the focus group sessions. Twelve churches were involved in the telephone survey with a population of 2480. Of the surveys returned, 850 were complete. The survey sample consisted of 99% AA and 72% female, with an average age of 50 years. A telephone questionnaire asked about physical activity (duration, type, and intensity); barriers and benefits to physical activity; and height, weight, and body mass index. Findings from the focus group sessions suggest participants consider being physically active as a part of a healthy lifestyle and maintaining wellness. While findings from the survey data indicated that participants engage in household or recreational physical activity in an effort to maintain wellness at a rate of 54%, both groups valued physical activity.

The last study, conducted by Nicklas et al. (2003), was a descriptive correlational study to determine the efficacy of a six-month lifestyle intervention among Caucasian and AA women who were postmenopausal. The sample consisted of 124 women between the ages of 50 and 73. Of the 124, 111 completed the 10-week dieting phase. Seventy six of the 111 completed the weight loss phase (Caucasian, $n = 57$; AA, $n = 19$). The participants met weekly in a group format and received dietary instructions (portion size management and avoidance of binge eating), stress management, and three (3) days a week of low-intensity walking for 30 to 45 minutes. One day a week the women walked on the treadmill at an exercise facility, supervised by an exercise physiologist, and the other two (2) days they walked on their own. This routine was continued for six months of the study. Participants provided measures of their body composition and fat distribution, glucose tolerance, lipoprotein lipids, and maximal aerobic capacity prior to the intervention and two weeks after. The 19 AAW weighed more and had higher body mass index (BMI) than the 57 Caucasian women at baseline. Other results include greater fat mass ($p < .05$) and lean mass ($p < .01$) among the AAW, while body fat, hip and waist girths were not different between the two groups at baseline. The weight loss was similar between the two groups after the intervention, although the Caucasian women lost a greater percentage of body fat. Findings indicate interventions directed to decrease caloric intake and increase physical activities are equally effective in Caucasian women and AAW.

In summary, multiple studies were identified that explored wellness and health-promoting behaviors, which offer insight into the conscious efforts that women make to maintain optimal health. These studies cited conclude that overall wellness is

multidimensional, which includes psychological and spiritual dimensions, and the more one exercises, the greater the perception of total wellness. These studies also suggest that women who were not engaged in health promoting activities tended to be more successful with increasing their activity levels when interventions designed to assist them with improving their health behaviors were provided.

Demographics

Age has been identified as having an inverse or negative association with physical activity, suggesting as age increases, physical activity decreases (Morbidity & Mortality Weekly Report, 2006; Yeager et al. 1993; Sanderson et al., 2003). Other demographics that have been associated with physical activity include education, income, socioeconomic status, and small children living at home (Baltrus et al., 2005; Brady & Nies, 1999; Nies, et al., 2003; Powell et al., 2006; Purath & Miller, 2005; Speck & Harrell, 2003). Several studies identified below have demonstrated the impact that demographic characteristics have on wellness and physical activity.

First, Sanderson et al. (2003) studied factors associated with physically active women in a rural community. This study, which was a part of the Women's Health Initiative, was part of a larger community prevention study designed to reduce CVD risk among AAW in rural Alabama. The major purpose of this study was to describe leisure and non-leisure physical activity patterns among rural AAW and Caucasian women 40 years of age and older. Face-to-face surveys were conducted in a predominately AA low-income community in two rural areas. Each participant's leisure-time physical activity level was assessed by their responses to the 1994 Behavioral Risk Factor Surveillance Survey (BRFSS), and included additional questions developed to assess non-leisure

physical activity. A comparison revealed 74% of Caucasian women and 67% of AAW reported participating in physical activity during the week for greater than 150 minutes. The researchers concluded that socioeconomic and demographic factors for the AAW participants who were active for greater than 150 minutes a week included being employed, having higher incomes and education levels, being married, and being at a younger age. In addition, AAW who reported arthritis or other health problems were less likely to be active.

Secondly, Speck and Harrell (2003) conducted a review of literature related to physical activity and women to identify variables that were predictive of or associated with regular physical activity maintenance. No information was provided related to the data bases or dates of the studies reviewed. Findings from this review show a relationship between physical activity in women and demographics (specifically age, education, and health status). With respect to age, they conclude that there is an inverse association seen with age and physical activity. Women with higher education levels tend to exercise more than those with lower education levels. Those with small children at home tend to exercise less than those without small children. They further report that health status is a predictor of exercise, as women who report poor health are less likely to exercise.

Next, Purath and Miller (2005) conducted a prospective, controlled trial study to analyze factors associated with increased physical activity. Female employees between 18 and 69 years of age were recruited from a university (location not provided). Of the 603 women invited to participate, 287 consented and met the inclusion criteria. Exclusion criteria included women who were found to be in the action or maintenance stage of change for exercise and those who were determined to have a potential risk of harm

secondary to physical activity. Racial profile of the participants was reported as 233 Caucasian, 11 AA, 12 Hispanic, 30 Asian or Pacific Islander, and 1 Native American. Participants were randomly assigned to an intervention or control group and completed a self-administered questionnaire. Screening and usual care counseling (advice related to improving personal health and/or referrals) was provided for both groups by a nurse practitioner. Those assigned to the intervention group received stage-tailored counseling after the usual care counseling. Telephone contact was made with the intervention group two weeks afterwards to discuss their progress as well as provide support or additional information as needed. Both groups were evaluated by making a comparison of their pre-test (baseline) and post-test (at week six) scores of self-reported physical activity and stage of change for exercise. Findings revealed a greater change in number of minutes walked per week by women with less education when compared with women with higher education and the greatest change was seen among those in the intervention group. A possible explanation for this finding is that women with lower education primarily chose walking because they had limited access to the other types of physical activities. Stage of change was significantly improved in minority women and an increase in self efficacy was a predictor of improved stage of change.

In another study, Brady and Nies (1999) compared health promotion and exercise behaviors of older AAW who were above and below the poverty level (annual income of $7,360). A convenience sample of 58 AAW, age 50 and older, were recruited on Sunday after church services at a mid-south Baptist church. The ages of the women ranged from 51 to 88 (M = 60.1) of which 26 were below and 32 were above the poverty level. Questionnaires, which included a demographic page and the Health Promoting Lifestyle

Profile (HPLP), were distributed to each participant. Results show those above the poverty level had higher HPLP scores (*M* = 2.85, *SD* = .40) than those below (*M* = 2.51, *SD* = .51). The above poverty level group also had higher exercise scores (*M* = 2.30, *SD* = .77) than the below poverty level group (*M* = 1.72, *SD* = .76). These findings indicate that as income increases, health promoting behaviors, including physical activity, increases.

Similarly, as part of a larger study designed to implement a walking intervention among women, Nies et al. (2003) conducted a qualitative study to investigate the response of a physical activity counseling intervention among women, based on annual household incomes. The sample of 31 mostly sedentary or inactive women between 30 and 60 years of age (*M* = 42.5, *SD* = 7.2) were classified into high income (HI) or low income (LI) groups. The HI group consisted of those who reported household income of >$50,000 annually (AAW, *n* = 9; European American women [EAW], *n* = 12), while the LI group consisted of those who reported household income of <$50,000 annually (AAW, *n* = 9; EAW, *n* = 7). A telephone survey was used to assess physical activity levels and participants received help with determining a way to include adequate walking into their weekly routine. Findings are reported in terms of physical activity responses based on socioeconomic status (SES) and race. With respect to SES, HI group members reported walking as a benefit (gaining a sense of accomplishment) while the LI group expressed their walking routine would be enhanced with availability of new equipment. Findings related to race were reported as EAW were more likely to walk with a pet or family member in their neighborhoods or a park while AAW were more likely to walk in malls.

Next, Baltrus et al. (2005) conducted a study to determine if socioeconomic position (SEP) and psychosocial and behavioral factors influenced the differences noted between Caucasian women and AAW related to weight gain. The original 34-year study began in 1965 in Alameda County, CA, and follow-up questionnaires were delivered via mail in 1974, 1983, 1994, and again in 1999. Baseline data revealed participants were between 17 and 40 years of age, 1375 of which consisted of women (Caucasian, n = 1201; AA, n = 174). An assessment was made of childhood SEP (father's occupation or education level), education, occupation, income, and cumulative SEP. Childhood SEP was included because it was believed by the investigators that it influenced cumulative SEP. Findings indicate physical activity scores were lower among AAW (2.17) than Caucasian women (2.81). A greater percentage of AAW (41.4%) had small children living at home, compared to Caucasian women (31.7%), which may have impacted their physical activity participation. Other results indicate AAW weighed more than Caucasian women at baseline by approximately five (5) kilograms (kg) and exhibited weight gain of 0.1 kg/year more than their Caucasian counterparts. Accordingly, these researchers report the large amount of racial differences seen in weight gain between these women can be explained by cumulative SEP, which suggests that their eating habits and food choices are influenced by their incomes, education, and cumulative experiences of the individual (including childhood SEP).

Other studies related to demographics and physical activity focused on neighborhood deprivation and physical activity facilities. For example, Powell et al. (2006) conducted a study to assess the availability of facilities designed to promote physical activity in areas across the United States. The population consisted of

approximately 280 million people who resided in 28,050 different zip code areas. During the year 2000, 52,571 physical activity facilities were available in those areas. An examination was made of the association between socioeconomic status (SES) and race/ethnicity with availability of four types of facilities (dance studios, schools, and halls; membership sports and recreation clubs; public golf courses; and physical fitness facilities). Data related to the facilities were obtained from Dunn and Bradstreet's Market Place software program. Data related to SES and neighborhood populations were obtained from the Census Bureau. Findings indicate a direct association between race/ethnic composition and SES of the community with availability of the facilities. Those living in communities with high proportions of AAs and low SES neighborhoods had fewer commercial physical activity-related facilities.

Stimpson, Ju, Raji, and Eschbach (2007) also conducted a study to examine whether SES of a neighborhood is an independent risk factor for unhealthy behaviors. Data were obtained from the National Health and Nutrition Examination Survey (NHANES) III and the 1990 US Census Bureau. Data were collected on a sample of 39,695 respondents between 1988 and 1994. The unhealthy behaviors that were examined included high dietary fat intake, physical inactivity, smoking, and excessive alcohol consumption. Findings of high rate of physical inactivity, female gender, years of education (fewer years lead to higher deprivation), low household income (<$20,000), and race were all characteristics of neighborhood deprivation. A greater number of AAs (40%) lived in neighborhoods of higher deprivation when compared with Caucasians (16%), and were found to have higher rates of health risk behaviors. These results indicate as the level of deprivation increases, the level of health risk behavior increases.

In summary, several studies were reviewed related to physical activity, wellness, and specific demographics such as age, education, income, number of small children living at home, socioeconomic position (SEP), and socioeconomic status (SES). Overall, these studies concluded that having small children living at home, increased age, low socioeconomic status, low socioeconomic position, and poor health status were associated with decreased physical activity levels. The studies also suggest that higher incomes and higher education levels were associated with increased physical activity. However, with appropriate interventions, AAW with less education were capable of increasing their physical activity.

Physical Activity

Physical inactivity is a major problem among many AAW (AHA, 2002). Studies have been identified that address facilitators and barriers to physical activity as well as interventions for increasing physical activity. This section reviews studies related to physical activity and AAW as well as other minorities.

In the first study, utilizing a qualitative method, Young et al. (2001) conducted a research study to explore what motivates AAW to engage in regular physical activity and maintain weight loss. Four (4) focus group sessions were conducted. One group consisted of 11 women who were active. Another group consisted of 11 women who were sedentary. A third group, successful weight loss group, consisted of nine (9) women. The fourth group, unsuccessful weight loss, consisted of six (6) women. Findings suggest the influence of others, weight control, stress reduction, and health concerns were motivators to initiating exercise programs, while having energy and feeling good were motivators to maintaining an exercise regimen.

Second, Nies et al. (1999) also employed the focus group method to determine facilitators of and barriers to increased physical activity in AAW. Eight AAW, ranging in age from 35 to 50 years, participated in each of the two focus group sessions. Findings in terms of facilitators of physical activity included daily routine, practical and convenient activities, personal safety, child care, weight loss, stress reduction, knowledge and commitment, enjoyment, pets, family and peer support, home and work facilities, and daylight and climate conditions. Barriers included lack of child care, no person to exercise with, competing responsibilities, lack of space in the home, inability to use exercise facilities at work, lack of understanding and motivation, fatigue, and unsafe neighborhoods. These findings suggest AAW have an understanding of the value and importance of exercise in their lives, but the contextual issues (as above) seemed to prohibit the development or maintenance of physical activity routines.

Third, Felton, Boyd, Bartoces, and Tavakoli (2002) conducted a descriptive correlational study to examine factors that influence physical activity among poor AAW between the ages of 18 and 55 ($M = 30$, $SD = 9$), within the environmental and social context of their daily lives. The sample of 49 was drawn from 152 unemployed AAW (income at or below the level of poverty) who lived in government subsidized housing in South Carolina (SC). Each participant completed a questionnaire providing information related to demographics (age, education, marital status, number of children, race, and occupation), personal (perceived health status, body mass index, blood pressure, and smoking history), modifiable behavioral (physical activity history), psychosocial (self-efficacy), and environmental factors (affordability, availability, convenience of facilities, and safety). The majority of the participants were obese (65%, $n = 29$) or overweight

(12%, *n* = 6). A large number of the participants were either at high health risk or extremely high health risk (60%, *n* = 29); health status was perceived as poor or fair by three fourths of the participants; and having a history of taking medication for hypertension was reported by 22% (*n* = 11). With regards to weight, 80% (*n* = 39) reported wanting to lose weight, half of which wanted to lose 35 pounds or more. A comparison between physically active and inactive women noted no significant difference in BMI (*p* = .67). These researchers concluded that factors that influence physical activity among these AAW were social and family support, and poor health or being obese were barriers to being physically active.

In a fourth study related to physical activity and minority women, Ainsworth et al. (1999) conducted a study to identify the prevalence of moderate intensity physical activity among Native American women (NAW) and AAW aged 40 years and over. The sample consisted of AAW residing in South Carolina (*n* = 111) and NAW residing in New Mexico (*n* = 107). Data were collected at three different periods (called rounds) every other month. Due to attrition, 141 (AAW = 65; NAW = 76) completed all three rounds. Participants recorded their physical activity levels for three four-day periods. The study considered cultural relevance by including household, transportation, occupation, and family care activities, since women spend a significant amount of their day performing these duties. Findings from this study indicated NAW met recommendations of moderate intensity physical activity most days of the week at a higher rate (46%) than AAW (15%). The NAW lived in rural sections compared to the AAW who either lived in or near more metropolitan areas. It was believed by the authors

that the NAW had a more active lifestyle secondary to living in rural areas and having to rely on walking for occupation-related activities.

In another study on physical activity, Suminski et al. (2002) examined a multiethnic population of college students, at a university in south central US, to determine if there were any differences in the rates of physical activity. The sample of 2836 students, consisting of Asian men (*n* = 385), Asian women (*n* = 489), African American men (*n* = 103), AAW (*n* = 229), Caucasian men (*n* = 461), Caucasian women (*n* = 640), Hispanic men (*n* = 189), and Hispanic women (*n* = 30), completed questionnaires during their regular class. Among this sample, 28.1% Asian women, 23.5% AAW, 17.4% Caucasian women, and 20.3% Hispanic women reported no regular physical activity routine. While 47% (*n* = 2,836) of the total sample were not physically active, minority female college students displayed the highest rate of physical inactivity when compared with their Caucasian counterparts. Although Asian women were found to have the highest rate of physical inactivity, AAW exhibited the second highest rate.

Reis et al. (2004) also conducted a study to address physical activity in minority women. They used a correlational design to describe estimated levels of non-occupational leisure-time physical activity according to degree of urbanization and geographic region of the US. Using data from the Behavioral Risk Factor Surveillance Survey (BRFSS) of all 50 states and the District of Columbia, a final sample of 137,359 adults ages 18 and older was obtained after controlling for missing data and other exclusions. The highest prevalence of physical inactivity was reported in the southern region, across all categories of urbanization. This study supports other research that suggests that individuals residing

in the southern region are more likely to be physically inactive than those residing in other regions of the US.

Adams, Der Ananian, DuBose, Kirkland, and Ainsworth (2003) also conducted a correlational study to describe the physical activity status of men and women who were classified as lean, overweight, or obese, as well as their physical activity preferences and levels. Using data from the SC 2000 BRFSS, a sample of 3175 men (n = 1309) and women (n = 1866) were surveyed. Results indicate a negative correlation was seen between physical activity and BMI (as physical activity increased, BMI decreased), with no significant difference between genders. As expected, the most active individuals were those in the lean category (29.5%).

In addition, Banks-Wallace and Conn (2005) conducted a study to develop and test an intervention to promote walking with AAW. A convenience sample of 21 hypertensive sedentary AAW ages 25-68 were recruited from a mid-Missouri community. The intervention consisted of a monthly three-hour group meeting, different topics of discussion, and group activities (walking or line dancing) over a 12-month period. The home-based walking component consisted of the Stanford Walking Kit. Women wore pedometers during waking hours for seven days. Baseline data were obtained prior to the first group session. Outcome data were collected, between group sessions, every three months, and for six months post-intervention. Mean steps per day were grouped according to the number of sessions attended to examine the number of steps in relation to sessions attended. At the end of the six-month follow-up, "…mean steps per day had increased by 1425 steps (37%) from baseline for the total group and by 2379 steps (51%) for the subgroup of women." (p. 30) The subgroup consisted of women

who participated in data collection all four periods. Results suggest the group intervention (as described above) had a positive impact on walking among sedentary AAW.

Similarly, Tai-Seale (2003) conducted a descriptive correlational study to identify triggers that initiate and barriers that prevent movement through the stages of change for exercise. The sample was obtained by using residential telephone directories and systematic random technique. Telephone interviews were completed by 418 participants from two rural Midwestern counties, 66% ($n \sim 276$) of which were women. Race was described as Caucasian, 89%; AA, six (6) percent; and other, five (5) percent. Participants were classified into one of five stages of change for exercise (precontemplators, contemplators, preparers, actors, or maintainers). Questions were asked to obtain triggers and barriers for each stage. Overall, findings for participants, regardless of stage, suggest belief in benefits as a trigger for increasing physical activity, and lack of time were barriers to increasing physical activity.

In another study conducted to explore factors influencing participation of AA elders in exercise behavior using the Transtheoretical Model of Behavior Change, Walcott-McQuigg and Prohaska (2001) utilized a focus group methodology. A non-probability purposive sampling from two urban senior centers yielded a sample of 103 men ($n = 46$) and women ($n = 57$) 55 years of age and older. Twelve focus group sessions were conducted consisting of between 5 and 12 people. Utilizing a motivational readiness for screening instrument, participants were categorized into one of three stages: precontemplation, contemplation/preparation, and action/maintenance. Since the study was to explore retention and recruitment and not to test an intervention, exclusion

categories were not delineated for each stage. Findings suggest social support from friends and family was important for initiating and maintaining a regular program of exercise.

Goodwin (2007) also conducted a qualitative study to describe rural AAW's perception of exercise. Two focus group sessions were conducted in two different rural Alabama churches. A sample of 18 AAW 40 years of age and older was recruited to participate in one of the two focus group sessions. Other inclusion criteria were a willingness to become a participant in the study and having an ability to communicate in English. Ten AAW agreed to attend the first focus group session; six (6) attended and participated. Eight agreed to attend the second focus group session; four (4) attended and participated. Definitions of exercise were provided by the participants, in terms of their own perspectives. While both groups were moderated by the primary investigator, some differences were noted in their responses. Exercise was regarded as job-related, according to participants in the first focus group, while participants in the second focus group "…regarded leisure-time activities as exercise and described different ways of accomplishing it" (pg. 19). Family support was identified as a major motivator to exercising by both groups and the lack of family support was regarded as a barrier.

Banks-Wallace and Conn (2002) also reviewed literature of interventions designed for AAW to promote increased physical activity. Eighteen (18) studies were reported between 1984 and 2000, with a total of 1,623 subjects. After the review of literature, the authors had multiple findings. Those findings that are significant to the current study include: 1) the number of studies designed specifically for AAW has increased; 2) AAW are capable of increasing their level of activity and they have done so

in response to specific interventions; 3) while research personnel have been professionals (nurses, medical doctors, exercise instructors, physiologists, dietitians) and lay persons (community members who were specially trained), there were no differences noted in the effectiveness of the interventions between the two groups; and 4) use of professional and community members who were African American enhanced the recruitment efforts. It was suggested that research should focus on "…interventions that move more women into physical activity…" p. 331, as well as interventions designed for women who are physically active to increase the amount of activity.

In summary, these studies conclude that family and social support, belief in benefits, weight control, and stress reduction are all motivators to being physically active, while barriers to physical activity include competing responsibilities, lack of space or time, unsafe neighborhoods, or lack of family and social support. While studies show that physical activity levels are low among AAW (even when household, transportation, occupation, and family care activities were included), with specific interventions AAW are capable of increasing their activities.

Cardiovascular Disease

As previously stated, cardiovascular disease (CVD) is a major problem for women in general and AAW in particular. There are many factors that influence CVD in women. This section of the review is organized around lifestyle, wellness, and physical activity, as they relate to CVD.

Lifestyle. Lifestyle is one of the factors that influence CVD in women. Lifestyle factors such as nutrition, stress, and exercise are documented as impacting CVD. Four studies were identified and a review of each is provided.

First, Diez-Roux et al. (1999) examined the prevalence of CVD risk factors (hypertension, smoking, physical inactivity, and overweight) and social correlates (clustering of these risk factors in this community) of CVD risk factors in an urban community. The sample population consisted of African Americans between 18 and 64 years of age. Questionnaires were distributed door-to-door, and face-to-face interviews were completed by 695 (287 men, 408 women) participants who represented 72% of those initially contacted between 1992 and 1994. Of the four risk factors investigated, findings indicated 80% of the men and women had at least one; 51% of the women and 40% of the men had two or more risk factors; and 19% of the women and 9% of the men had three or more of the risk factors. These findings suggest AAW had a greater number of CVD risk factors than their male counterparts.

Second, Yawn et al. (2004) conducted a chart review to gain a better understanding of the age when women's coronary heart disease (CHD) risk factors (hypertension [HTN], elevated lipids, elevated serum glucose, obesity, and smoking) are recognized. The sample consisted of 150 Caucasian women from Omstead County, MN. This study was conducted by examining the records 10 years prior to first diagnosis of myocardial infarction (MI); the average age was 74.7 years at the time of the incident. These findings suggest women 70 years of age and older at the time of MI diagnosis were more likely to receive diagnosis and preventive information related to coronary heart disease (CHD) than women younger than 70 years of age.

Lastly, Krummel et al. (2002) conducted a study to explore perceptions of CVD susceptibility, awareness of healthy diet recommendations, behavioral changes related to nutrition, barriers and interventions related to behavior change for nutrition, and to obtain

ideas of effective behavior change in rural women. Using a purposive sampling technique, 34 White women who resided in a rural county in West Virginia made up the sample. This county was chosen secondary to having a high prevalence of CVD and associated risk factors. These women, who were between 20 and 55 years of age, participated in one of six separate focus group sessions. Other inclusion criteria included no past history of CVD and less than one year of education after high school. Three groups consisted of 20 to 40 year olds (n = 18) and three groups consisted of 40 to 55 year old (n = 16). Women were placed in groups according to age. There was a difference noted between the younger and older group of women. The younger women groups were concerned about who would be around to care for their family, and not necessarily concerned about behavior change. The older women groups, on the other hand, were more inclined to change their behavior. The older women wanted to learn how to change their behavior, with responses like "…what could I do to help myself…" (p. 40). Overall, the findings suggest these women have a lack of awareness with regarding how CVD impacts women. Not understanding the impact CVD has on women may lead to higher mortality and morbidity for this population.

Wellness. Another factor that influences CVD in women is wellness. Wellness, as previously stated, is defined by Neuman (2002), as the interacting parts of the client system (which includes the sociocultural, developmental, physiological, spiritual, and psychological variables) maintaining harmony and stability with the whole system. This dynamic state of harmony is related to the individual's efforts to attain, maintain, or retain optimal health. This section includes studies that relate to CVD and wellness. Three studies that met these criteria are reviewed.

First, in a comparison of homemakers and working women, Rose et al. (2004) investigated the association of employment status and mortality of White and AA women. This comparative descriptive study was conducted to determine if working outside the home contributed to higher CVD rates. The sample consisted of 7361 women and was divided into two groups. Those who were identified as homemakers (*n* = 1958) included AAW (*n* = 426) and Caucasian women (*n* = 1532). Those who were employed (*n* = 5403) included AAW (*n* = 1779) and Caucasian women (*n* = 3624). Data were obtained from the Atherosclerosis Risk in Communities (ARIC) Study between 1987 and 1989. Inclusion criteria were Caucasian or AA women between 45 and 64 years of age residing in Forsyth County, North Carolina, or Jackson, Mississippi. Findings suggest employed women had lower cardiac mortality than homemakers. This was thought to be secondary to increased self-esteem and socio-economic status. Another factor may be that those who are employed are healthier, as opposed to those who are not employed outside the home. There was no significant difference noted between races.

Next, Fleury, Sedikides, and Lunsford (2001) conducted a descriptive study to explore how psychological well-being was regained or maintained by women after a cardiac event. Using the group session format, a sample was obtained of 13 women between 42 and 78 years of age (mean age 58). Data were collected during the weekly one-hour sessions over a nine-month period. The sessions were not audio-taped as per the participants' request. The investigator respected their wishes to enhance the rapport and open atmosphere. Findings indicate having a sense of connectedness with a significant other is a way that women maintain or regain their psychological well-being after a cardiac event.

Finally, Burke et al. (2001) were a part of the Cardiovascular Health Study Collaborative Research Group who conducted a study to identify factors associated with older adults remaining healthy. A total of 5,888 men and women 65 years of age and older made up the sample; 5,201 at baseline (1989-1990), and 687 African American participants added during 1992-1993. This study looked at events that occurred through June 30, 1996. The original group averaged six and one-half years (6.5) of follow-up and the AA group averaged three and one-half years (3.5). Those who were free of chronic diseases at baseline were included and monitored for the onset of chronic diseases during the study period. Health was described as no evidence of cancer, chronic obstructive pulmonary disease (COPD), or CVD. Modifiable behavioral factors identified included physical activity, smoking, and obesity; cardiovascular risk factors included high-density lipoprotein (HDL) cholesterol, blood pressure, and diabetes. The groups for both men and women (without identification of race) were divided by age as 65 to 69, 70 to 74, 75 to 79, 80 to 84, and 85+. Findings suggest as age increased, the risk of cardiovascular events increased; men had higher cardiovascular event rates than women. Participants between 65 and 69 years at the beginning of the study remained healthy at a rate of 79% for women and 69% for men. Those who were 85 years and older at the beginning of the study remained healthy at a lower rate 48% (women) and 34% (men). Findings suggest the factors associated with these participants remaining healthy include physical activity, smoking cessation, decreased weight, increased HDL, and the absence of hypertension and diabetes.

Physical Activity. Physical activity is the third factor that has an influence on CVD in women. Identifying previous studies that address this factor is included in this section. A review of three studies follows.

First, Branch, Pate, and Bourque (2000) conducted a study to compare cardiorespiratory and metabolic effects of moderate and vigorous intensity exercise training in women. Eighteen participants between the ages of 40 and 60 years were randomly assigned to moderate- and high-intensity physical activity groups. Exercise training was conducted three to four days a week for 12 weeks. Participants completed 728 exercise sessions of which 605 (83.1%) were monitored directly by the investigators. Both groups completed the same number of sessions. Measurements included exercise intensity (heart rate and estimated metabolic equivalents), exercise duration (minutes per session), exercise frequency and adherence (sessions/week and total exercise sessions), exercise progression (initial work rate, end of training work rate, increments in work rate), and estimated energy expenditure. Data were collected from the participants who had a 10 to 12-hour fasting period 36 or more hours after their final exercise session. The moderate group had longer duration while the high group had higher intensity, which resulted in training volumes that were similar. Findings suggest moderate-intensity physical activity (described as participants reaching 40% of their maximal oxygen consumption) provided improvement in cardiorespiratory fitness comparable to high-intensity (described as participants reaching 80% of their maximal oxygen consumption) physical activity.

Second, Hu et al. (2001) conducted a prospective cohort study of 5,125 female nurses with diabetes to determine whether physical activity decreased their risk for CVD.

This sample consisted of female nurses who resided in 11 states and were between 30 and 55 years of age. Participants completed initial questionnaires related to their lifestyle and medical history. Every two years, follow-up questionnaires were administered to obtain information related to potential risk factors and diagnoses of heart or other diseases. In 1980, questionnaires included information related to physical activity. Participants who exercised at a moderate or vigorous rate had approximately 40% reduced risk in CVD compared to those who did not. Findings from this 14-year study (from 1976 to 1992) suggest physical activity was strongly associated with decreased risk for CVD.

In this third and last study, Gubler et al. (2007) sought to determine the effects of two different interventions on increasing physical activity and to determine the cardiovascular risk factor effects of both. A convenience sample of 14 (12 women and 2 men) volunteers between the ages of 31 and 66 completed the 10-week study. Each participant completed a questionnaire for health assessment and demographic information. Measurements included resting heart rate, blood pressure, waist circumference, height, weight, total cholesterol, high density lipoprotein, low density lipoprotein, blood glucose, and C-reactive protein (CRP), while physical level was evaluated using the Reebok 1-mile walk test. Each participant was given a pedometer with instructions to wear it during their waking hours prior to the first scheduled intervention meeting, to obtain baseline physical activity. Through random assignment, each group consisted of one (1) man and six (6) women. Group 1 participants attended educational classes (Active Living Everyday [ALED]) promoting lifestyle behavior changes, and were told to increase their time spent walking each day whenever possible. Group 2 participants (goal-oriented) were instructed to attain 10,000 steps daily, without

any educational or motivational information. Both groups were instructed not to change their dietary habits during the study. While both groups increased their daily steps to 9,943 (Group 1) and 10,334 (Group 2), there were no significant differences in steps per day, CVD risk factors, or the CRP measurement between the two groups. These researchers concluded that both group interventions were effective in increasing physical activity among the participants, with no significant differences in the other measures between the groups.

In summary, many factors influence CVD in women. This review of literature was organized around lifestyle, wellness, and physical activity as they relate to CVD. These studies conclude that while AAW have a greater number of CVD risk factors than their male counterparts, women have a lack of understanding of CVD which may be related to the older age when they receive preventive information. These studies also conclude that women working outside the home had lower CVD mortality rates than homemakers, and as age increased the risk for CVD events increased. And finally, these studies show that accumulated increased physical activity is associated with decreased risk for CVD, in both moderate- and high-intensity levels.

Rural Women

The literature in this section is centered on women in a rural setting. The focus is on health promoting behaviors, perceived barriers to health promotion, and physical activity behaviors of these women. A review of seven (7) studies follows.

First, Martin et al. (2005) conducted a study using data obtained from 49 states and the District of Columbia on the 2000 BRFSS. The purpose of this study was to determine if CDC guidelines for physical activity were being met and if there were

significant differences between urban and rural participants. A sample of 126,824 met inclusion criteria. While demographic information was reported in terms of race or gender, there was no distinction made indicating both race and gender of the participants. Participants were questioned about their type, frequency, and duration of leisure time physical activity. Physical activity was defined as moderate-intensity (activities such as calisthenics or dancing) and vigorous-intensity (which included aerobic activities). Results indicated physical inactivity had the highest prevalence in the most rural areas (33.1%), while it was lower in the middle and urban areas ranging from 25.7% to 25.9%. Findings suggest those living in a rural community in the South were more likely to report being physically inactive than those in the other three regions examined (Midwest, Northeast, and West). African Americans living in the rural south were found to have a greater rate of physical inactivity than their urban counterparts.

Second, Brownson et al. (2000) conducted a cross-sectional study to describe patterns and behavior correlates of physical activity among minority women, in urban and rural areas, using data collected from telephone surveys. The sample of 2912 women age 40 and older was obtained by selecting zip codes where more than 20% of the desired population resided. Included in this minority population were African American, Alaskan Native/American Indian, and Hispanic women. Asian American/Pacific Island women were excluded secondary to a higher non-response rate than the other ethnic groups. A group of Caucasian women were also surveyed for comparison. The survey instrument was developed using questions from other surveys including the National Health Interview Survey and BRFSS. To account for seasonal variations, interviews were conducted during the first two weeks of each month beginning in July, 1996, and ending

in June, 1997. Respondents were asked about their physical activity during the past two weeks. Findings indicated AAW self-report a higher rate of physical inactivity than their Caucasian counterparts, and women residing in rural settings were 33% more likely to be physically inactive than those in urban areas.

In another study, Patterson, Moore, Probst, and Shinogle (2004) conducted research to examine the issue of physical inactivity and obesity among rural populations. Using a data set of 32,440 interviews from the 1998 National Health Interview survey, they obtained self-reported information related to weight and height (to calculate BMI) and physical activity levels. Leisure time physical inactivity was identified in three (3) out of five (5) adults across both urban and rural participants. When compared with urban adults, rural adults were physically inactive at a slightly higher proportion. Results indicated rural African Americans, Caucasians, and Hispanics were no more likely to be physically inactive than urban Caucasians, but there was a greater prevalence for obesity among rural residents when compared with urban residents. Findings further suggest poor health, current smoking, and less than high school education were associated with physical inactivity among rural female residents.

In addition, Hageman, Walker, Pullen, Boeckner, and Oberdorfer (2005) conducted a cross-sectional study to examine fitness biomarkers and increased physical activity behaviors of rural women residing in Nebraska. Women between 50 and 69 years of age were recruited to participate in this study. Of the 823 women recruited, 225 met the inclusion criteria (English-speaking, ability to walk continuously for one mile, clearance obtained from their primary care provider, and not meeting Healthy People 2010 physical activity recommendations). Participants were White (n = 213, 94.7%),

Hispanic (*n* = 8, 3.6%), and Native American (*n* = 4, 1.8%). Measured height and weight were obtained to calculate BMI. Rockport Fitness Walking Test was utilized to measure cardiorespiratory fitness, the modified Sit-and-Reach Test was used to measure flexibility, and the Timed Chair Stands Test was used to assess lower extremity strength. Results show the physical activity levels of these rural women were low. Findings suggest lifestyle modifications, including increased physical activity, may be difficult to implement in rural areas secondary to limited availability of programs designed to promote health.

Wilcox, Bopp, Oberrecht, Kammermann, and McElmurray (2003) also conducted a study to describe women and physical activity. They used a descriptive design to obtain a better understanding of rural older AAW and White women with regard to factors that influence physical activity. This was accomplished, through self-administered questionnaires, by focusing on psychological, sociodemographic, and perceived environmental influences of these two groups of women. The participants were 50 years of age and older and resided in Fairfield County, South Carolina. AAW comprised 41% of the sample of 102 (*n* ~ 42). Pearson correlation coefficients were used to assess the associations between study variables (age, race, education, marital status, self-efficacy, decisional balance, depressive symptoms, perceived stress, social support, health care provider discussed exercise in past year, perceived safety, perceived sidewalks, perceived traffic, perceived lights, perceived dogs, perceived park nearby). The education levels and age of the sample were similar for both Caucasian women and AAW, and they found no race differences in physical activity or the correlates. The findings suggest that race or

ethnicity is less influential on physical activity than age and education level among older women.

Additionally, Pullen, Walker, and Fiandt (2001) conducted a correlational study to describe lifestyle behaviors that promote health and to determine the extent to which contextual influences (provider counseling and health information sources) and personal influences (definition of health, demographics, and perceived health status) explained lifestyle behaviors and attempts to change. Four rural Nebraska communities provided the convenience sample of 102 White women, 65 years of age and older. The questionnaires were administered via telephone contact. The Laffrey Health Conception Scale (LHCS) was used to measure the definition of health and three scales (adaptive, eudaimonistic health definition dimensions, and role performance) were combined to form a measure for the definition of wellness. Other measures included the Health-Promoting Lifestyle Profile II (HPLP II), and Medical Outcomes Study Short-Form General Health Survey (MOS). "Among the personal influences, defining health as the presence of wellness was the strongest determinant of overall health-promoting lifestyle as well as of the dimensions of physical activity, nutrition and stress-management behaviors examined separately." (p. 65) Findings suggest an overall health-promoting lifestyle was seen in participants who defined "…health as the presence of wellness…" (p. 65), and if older adults broadened their definition of health to include the presence of wellness, they would show an increase in health-promoting behavior.

Finally, using a qualitative methodology, Johnson and Nies (2005) conducted a study to compare barriers to health promoting behavior between African Americans residing in rural and urban areas. A total of 21 participated in one of the two focus group

sessions, Mississippi (*n* = 15, 71%) and Georgia (*n* = 6, 29%). Documentation in this report did not clearly identify which state provided participants from rural or urban areas. Participants were recruited from barber shops, beauty parlors, churches, and community civic organizations. AAW comprised 71% (*n* = 15) of the sample. Other sample demographics include age (*M* = 37.9, *SD* = 10.8); completed high school (*n* = 11, 52%); married (*n* = 12, 57%); and personal income ranged from $5001 to $20,000 (*n* = 11, 52%). Each focus group consisted of one three-hour session, as per participant request. Data were analyzed by content analysis procedures (using NUDIST Nivo 1.0). Three themes were identified out of the data, "Cost", Lack of Discipline", and "Lack of Motivation". While both groups considered cost to be a barrier, the rural group participants felt that the cost of maintaining a healthy lifestyle (eating healthy, increasing physical activities, etc.) were a major burden. The urban group also identified cost as a barrier but considered it to be more of an impact as opposed to a hindering factor. They felt that it did cost more to be healthy, but the cost did not stop them. The urban group also regarded walking as a form of physical activity that was free. Both groups considered lack of discipline as a barrier either in terms of time or discipline. Lack of motivation was regarded by both groups as a barrier and was with regard to either being lazy or just not developing a habit of healthier living.

In summary, the studies reviewed conclude that rural AAW are more likely to report higher rates of physical inactivity, which may be associated with limited availability of programs in rural settings. These studies also concluded that there was an association between poor health, current smoking, and less than high school education among rural women who reported physical inactivity, as age and education levels were

more influential than race or ethnicity. However, one study reported conflicting results concluding that rural women were no more likely to be physically inactive than their urban Caucasian counterparts.

Neuman Systems Model

The NSM has proved itself empirically and nursing literature has examples of its use in practice (August-Brady, 2000; Haggart, 1993; Knight, 1990; Newman, 2005; Wilson, 2000). The NSM has been used in research with African Americans in the past (Capers, 1991; Fowler & Risner, 1994; Johnson, 1983; Picot, Zauszniewski, Debanne, & Holston, 1999). Three studies were reviewed that pertain to the client-system concept of the NSM and AAW.

First, Kottwitz and Bowling (2003) conducted a pilot study to develop a questionnaire to explain how elder abuse is perceived, using the client-system concept. Participants were power of attorneys for 40 employees and 40 residents in a long-term care setting. No information was provided related to the race of the participants. The questionnaire was developed to address areas of abuse that were not necessarily easily documented with objective data, such as physical signs. Using the NSM wholistic system concept (currently referred to as the client system concept), the questions were designed to evaluate the five variables. These include developmental, physiological, psychological, socio-cultural, and spiritual. Each variable was represented by a scale on the questionnaire, allowing for evaluation of those areas of elder abuse. Data collection was accomplished during the first four phases and the analysis took place in the fifth phase. Findings suggest a direct interrelationship between the scales (variables) which support the NSM client system concept.

Second, Jones-Cannon and Davis (2005) conducted a combination qualitative and quantitative methodology study to examine coping strategies of African American daughters who are caring for their aging parents. This was a two-phase exploratory design. Phase one consisted of a series of focus group sessions with 44 respondents. Phase two participants ($N = 106$) received surveys through the mail. The sample was obtained from African American churches and consisted of AAW 30 years of age and older who cared for a parent who was 65 years of age or older. The NSM, which was chosen secondary to the focus on stress and stress reaction, provided the framework for the study. The key variables that were being addressed were psychological and spiritual. Findings suggest spirituality was considered a protective buffer as well as a factor of resource that was helpful with the caregiver's defense against stressors. Having a good daughter-parent relationship, being in support groups, increased involvement of other family members, and religion functioned as stabilizing mechanisms for the client system. This enabled the daughters to cope with environmental stressors encountered by the caregiving situation. These findings are consistent with the component of the NSM which focuses on the client-system concept.

Finally, Dunn (2007), using the NSM as the theoretical framework, conducted a study to examine the client system variables with self-reports of health among older African Americans in Detroit. The sample consisted of 92 AA who were 60 years of age and older and able to speak and understand English. The sample was obtained from the 2001 Detroit City-Wide Needs Assessment of Older Adults, using a random-dial telephone method. Of the 92 participants, 77 were female and 15 were male. Their ages ranged from 61 to 100.4 years ($M = 74.0$, $SD = 7.6$). Assessment of the five variables

included the Verbal Descriptor Scale, which measured pain, for physiological variable; Geriatric Depression Scale, used to assess the psychological variable; demographic data, which provided information relative to the sociocultural variable (marital status and education level) and "…the influence of age…on self-reports of health…" (p. 238) provided data for the developmental variable; and the Religiosity Index provided information relative to the spiritual variable. Based on Neuman's client system concept, variables were analyzed for relationships. A significant negative association was found between self-reported health and number of health conditions reported (physiological). Those with higher pain and greater number of health conditions had lower health ratings. Age (developmental variable) was not significant. Participants with greater number of depressive symptoms, pain, and health conditions had lower health ratings (psychological variable). The sociocultural (marriage and education) and spiritual (religiosity index) variables were not associated with self-reported health. Findings from this study suggest psychological and physical factors may be more influential than spiritual and social factors in relation to appraisals of health that are self-reported.

In summary, the client-system concept of the NSM has been used in research with AAW. Study findings conclude that there is a direct interrelationship between the variables which support the NSM client system concept. Specifically, spirituality was considered a protective buffer and psychological factors were considered a stabilizing mechanism for the client system. These studies also concluded that psychological and physical factors, compared to spiritual and socio-cultural factors, were more influential with respect to self-reported health appraisals.

Transtheoretical Model of Behavior Change

The TTM was originally developed to assist people change smoking behaviors. Other studies were developed to assist people change unhealthy habits, including physical inactivity (Prochaska et al., 2002). A review of four studies that describe the relationship between the TTM and physical activity follows.

First, Cardinal (1997) conducted a prospective investigation to gain an understanding of the role that stage of change for exercise plays in maintenance of regular exercise over a seven-month period. The sample consisted of 66 women between the ages of 22 and 55 (M = 36.8, SD = 2.4) who were employed as full-time clerical workers at one worksite. Other inclusion criteria were no CVD symptoms and classified as either in Contemplation or Preparation stage of change for exercise. Education level was reported at 78.7% non-college graduates; race information indicated 78.7% were AAW. Findings of this study suggest at seven months post baseline, participants in the preparation stage were not more likely to progress to the action stage than those classified in the contemplation stage. This implies that stage-specific interventions are needed to assist participants with initiating and maintaining exercise on a regular basis.

Second, Hausenblas, Dannecker, Connaughton, and Lovins (1999) conducted a study to examine the validity of the Stages of Exercise Change Scale using self-report of exercise participation and cardiorespiratory endurance. University of Florida police officers were asked to volunteer. Of the 53 officers asked, 49 (92.45%) completed the questionnaires and 85.7% (n = 42) were males. Once the participants completed the Stages of Exercise Change Scale and Leisure-Time Exercise Questionnaires (LTEQ), the cycle ergometer test was administered to them by a certified exercise specialist.

Participants were divided into three stages of change for exercise as follows: preparation (20.4%, *n* = 10), action (26.5%, *n* = 13), and maintenance (44.9%, *n* = 22). Since only four (4) participants were in the precontemplation stage and none were found to be in the contemplation stage, these two stages were eliminated. Findings suggest the stage of change algorithm (a one-item scale designed to place the individual in one of five stages of change) was a valid and reliable method since a significant difference was noted in the self-reported stages of change that corresponded to the LTEQ scores. Another finding suggests participants in the action stage, compared to those in the preparation stage, had greater cardiorespiratory endurance, while no significant increase was noted between those in the maintenance and action stages.

Next, Davis (2000) conducted a study of African Americans (AA) with hypertension between the ages of 55 and 87 recruited from a senior center (*N* = 20) and an elderly public housing building (*N* = 17). Of the 37 participants, 70.3% (*n* = 26) were female. Instruments utilized included the Stages of Change Scale, Diet Exercise Efficacy Scale (DEES), and the Diet Exercise Outcomes Scale (DEOS). The Stages of Change Scale assessed four levels of change (precontemplation, contemplation, action, and maintenance), DEES and DEOS were based on efficacy expectations. Findings of high scores in contemplation, action, and maintenance stages suggest elders are not necessarily resistant to change and can be motivated to adopt healthy behaviors which include increasing physical activity.

In contrast to those findings, Jennings-Sanders (2003) conducted a descriptive nursing study to examine older African Americans' health promoting behaviors and their stage of change for health behavior using the TTM. Nursing faculty and nursing students

conducted two health fairs six months apart. Forty AA between 68 and 85 years participated in the initial health fair which consisted of an examination of health promotion behaviors, health screenings, and health education information was provided to all participants. During the second health fair, 50 additional older AA joined the returning 40 participants. In regards to dental health, exercise, nutrition, smoking, and vision care behaviors, most of the participants were in the precontemplation stages during both the initial and second health fair, indicating no change despite having access to health promoting behavior information. The researchers concluded that educating this population may be difficult as many of these behaviors were established at younger ages.

In summary, these studies concluded that the stage algorithm (one-item questionnaire) was an appropriate tool to assess stage of change for exercise. The studies also concluded that while educating older adults may be difficult as their lifestyle behaviors were established at a young age, older adults are capable of increasing their physical activity levels with stage-specific interventions.

Summary

This literature review addressed perceived wellness/wellness, demographics, physical activity, and cardiovascular disease, the study variables, as well as rural AAW. The cited literature also focused on the study's theoretical framework, the Neuman Systems Model and the Transtheoretical Model of Behavior Change.

Despite the disproportionately high rate of deaths among AAW related to CVD (Ma'At et al., 2002), few studies have been identified that address this specific population with respect to CVD. AHA (2003) reports that as age increases the incidence for CVD and physical inactivity increases in this population, which may be related to continued

misperceptions that CVD is not a real problem for women (AHA, 2006a). It is also noted that research has consistently shown AAW as having a high rate of physical inactivity (Ainsworth et al., 1999; Powell et al., 2006; Suminski et al., 2002).

Several limitations to the cited studies include inadequate sample size or inadequate AAW representation in the sample. Research that examines the wellness perceptions of rural AAW in conjunction with their stage of change for exercise is imperative in order to develop individual and population-specific interventions aimed at decreasing the CVD risk by increasing their physical activity levels. The current study adds to the existing body of literature by: assessing the perceived wellness scores of a sample of rural AAW; ascertaining their current stage of change for exercise; determining if there was an association between their perceived wellness and stage of change for exercise; determining if there was an association between stage of change for exercise and history of cardiovascular disease; and determining if there was an association between other demographic variables, perceived wellness, and stage of change for exercise.

CHAPTER III

METHODOLOGY

The purpose of this study was to describe rural African American women's perception of wellness as it relates to their stage of change for exercise. Information was obtained by: 1) assessing perceived wellness of a sample of rural AAW; 2) ascertaining their current stage of change for exercise; 3) determining if there was an association between their perceived wellness and stage of change for exercise; 4) determining if there was an association between stage of change for exercise and history of cardiovascular disease; 5) determining if there was an association between perceived wellness and history of cardiovascular disease; and 6) determining if there was an association between other demographic variables, perceived wellness, and stage of change for exercise. Applying both Betty Neuman's Systems Model and the Transtheoretical Model of Behavior Change, the research questions that guided this study were:

(1) Is there a significant relationship between perceived wellness and the individual AAW's stage of change for exercise?

(2) Is there a significant relationship between self-reported history of cardiovascular disease, perceived wellness, and the individual AAW's stage of change for exercise?

(3) Is there a significant difference in the stage of change for exercise between AAW who self-report no history of CVD and those who self-report a history of CVD?

(4) Does age, income, education, marital status, or employment status significantly affect perceived wellness and stage of change for exercise among AAW?

This chapter provides information related to the research methods and statistical procedures that were used in the study. The sections are divided according to design, sample, setting, instrumentation, data collection procedure, and data analysis. The descriptions follow.

Design

A descriptive, correlational design was employed for this study. Since the researcher was interested in determining if there was a relationship between perceived wellness and stage of change for exercise, this design was the most appropriate. According to Burns and Groves (2001), the descriptive correlational design facilitates identification of relationships between variables in a given situation in a short period of time.

Sample

Sample Selection. The names of 80 predominantly African American churches were obtained from three (3) African American graduate nursing students who attended a local university and were residents of Dallas County, Alabama (AL). The initial recruitment process consisted of sending letters (Appendix B) to each pastor asking permission to conduct the study at their church and included the information flyer (Appendix C). When no response was obtained, the cluster sampling technique was used in order to obtain the sample from this population. Cluster sampling, a type of probability or random sampling, was chosen in order to select the churches by chance, which adds to the validity of the study (Burns & Grove, 2001). The names of the 80 churches were

written on individual pieces of paper, folded, and placed in a bag. The principal investigator (PI) randomly withdrew names from the bag until five (5) percent of the population was obtained. Therefore, the sample was achieved with four (4) churches. The names of the remaining churches were retained for future use in the event adequate numbers of participants were not obtained from the initial four (4) churches.

Inclusion Criteria. Study participants consisted of AAW who attended one of the four (4) study churches. Inclusion criteria were self-identified AAW between 40 and 75 years of age with or without a history of CVD; a resident of Dallas County, AL; able to stand and walk unassisted; able to read and write in English; willing to complete the survey; and willing to be a participant in this study. These selection criteria assured that participants had the potential to be physically active.

Recruitment of Participants. Participants were recruited by the principal investigator by first making contact with the pastors of each of the four churches to gain access to the participants. In order to enhance success in reaching the participants for the study, an African American community leader was invited to help access the pastors from the various churches. Since the PI was not affiliated with any of the churches, it was determined that a community leader, someone to serve as a gatekeeper, would be of great benefit to gain access into the community. This technique was utilized as it has been found that credible community leaders are helpful with facilitating communication and recruitment in African American communities (Brown, 2004; Kaplan, Calman, Golub, Ruddock, & Billings, 2006; Markens, Fox, Taub, & Gilbert, 2002).

Immediately following the worship services, the pastors introduced the PI to the congregation. The PI described the study to the congregation and asked women between

40 and 75 years of age to remain, if they were interested in participating. This technique was utilized at all four (4) churches to obtain the convenience sample of AAW in attendance. While the convenience sampling technique tends to have a greater chance of bias, collecting demographic data aids in description of the sample. This information helps to determine the representativeness of the sample with respect to the population (Burns and Grove, 2001).

Sample Size. The sample size was determined by using a statistical power of .80, a significance criterion of .05, and a .60 effect size. Utilizing the Master Table prepared by Burns and Grove (2001), the appropriate sample size was 18 participants per variable. There is one (1) dependent variables (perceived wellness) and eight (8) independent variables (stage of change, age, income, education, marital status, employment status, number of dependent children in household, and history of heart disease), yielding a total of nine (9) variables. When nine (9) is multiplied by 18, the product is 162. The sample size for this research study was 162 participants. To account for attrition, an attempt was made to obtain a sample size of at least 178, which is 10 percent over the required amount.

Based on recruitment efforts, a total of 191 AAW volunteered to participate in the study of which 162 met the inclusion criteria. Although the announcement specifically requested AAW between the ages of 40 and 75 years, 29 of the volunteers were either between the ages of 19 and 39, or over 75 years old. Those 29 participant questionnaires, therefore, were not included in the sample, as they were not within the specified age range.

Setting

Dallas County. Dallas County, AL was chosen because of the large African American population in this rural county. For this study, a rural county was defined as a territory that is outside of a metropolitan area and includes no city with 50,000 or more residents (U. S. Department of Agriculture, 2006). In 2000, the estimated population of Dallas County was 46,365, of which 25,273 were female. African Americans comprise 63.3% of the total population in this county (U.S. Census Bureau, 2000). Dallas County, AL, consists of 980.71 square miles, with Selma, AL serving as the largest city in the county.

Selma, AL. In 2000, the U.S. Census Bureau (2000) reported the estimated total population in Selma, AL was 20,512. Similar to the population estimate of Dallas County, African Americans account for 69.6% (n = 14,293) of the total population in Selma, AL. African American females comprised 70% (n = 8,079) of the female population in Selma, AL (US Census, 2000).

African Americans have historically utilized their church to gain information that is important to them, whether it relates to health or other issues (Reid, Hatch, & Parrish, 2003). Recruiting research participants through church affiliation is an effective strategy when African Americans are the focus of the research. Several research studies have been conducted utilizing African Americans recruited from church congregations (Baldwin, Humbles, Armmer, & Cramer, 2001; Banks-Wallace, Enyart, & Johnson, 2004; Brown, 2004; Carter-Edwards, Fisher, Vaughn, & Svetkey, 2002; Drayton-Brooks & White, 2004; Goodwin, 2007; Turner, Sutherland, Harris, & Barber, 1995; Young & Stewart, 2006).

This study was conducted at four (4) church sites in Selma, AL, between September and October, 2007. Each of the four (4) churches is described as follows:

Church One, a Baptist church, reported a congregation size of 425 members. There were two (2) morning services held each Sunday, at 0800 and 1030. Sunday school was held between 0930 and 1030. Besides the Sunday services, this church reported several ministries. They included a Health Care Ministry, a Youth Ministry, and a Singles Ministry (personal communication with the pastor, Sunday, September 9, 2007).

Church Two, a Baptist church, reported a congregation size of 350 members. This church had two (2) morning services each Sunday at 0800 and 1100. Sunday school service was held between the two (2) morning services from 0930 until 10:30. This church reported two (2) ministries, a Singles Ministry and a Youth Ministry (personal communication with the pastor, Sunday, September 23, 2007).

Church Three, a Baptist church, reported a congregation size of 450 members. There were two (2) Sunday morning services held at 0800 and 10:30. Sunday school service was held between the two (2) morning services. Of the four (4) churches, this church had the greatest number of ministries which included: Children's Church, Audio/Video Ministry, Marriage & Singles Ministry, Porter Ministry, Youth Ministry, Outreach Ministry, Education Ministry, Music Ministry, Intercessors Ministry, and a Dance Ministry (personal communication with the pastor, Sunday, September 30, 2007).

Church Four, a non-denominational church, reported a congregation size of 400 members. Like the three (3) Baptist churches, this church had two (2) Sunday morning services. The first was at 0800 and the second was at 1100. Between these services, Sunday school was held from 0930 until 1030. This church reported having a Health

Ministry, a Youth Ministry, and a Singles Ministry. At the time of the study, this church was preparing to open a community bank and a community center (personal communication with the pastor, Sunday, October 21, 2007).

Instrumentation

The three-part questionnaire (Appendix A) that was used in the study to collect the data is a compilation of three (3) different instruments: the Perceived Wellness Survey, the Exercise: Stages of Change – Short Form Questionnaire, and a profile sheet for demographic data. Permission to use the Perceived Wellness Survey was obtained from Dr. Troy Adams (Appendix D). Permission to use the Exercise: Stages of Change – Short Form was provided by the University of Rhode Island Cancer Prevention Research Center (Appendix E). A description of each instrument follows.

Perceived Wellness Survey. To assess perceived wellness, the Perceived Wellness Survey (PWS) was used (Appendix F).The original PWS was a 69-item questionnaire with six scales. After item reduction, the PWS became a 36-item, six-point Likert scale instrument with six subscales (Adams et al., 1997).

The revised PWS is a compilation of six subscales, psychological, emotional, social, physical, spiritual, and intellectual. The psychological variable is measured by items 1, 7, 13, 19, 25, and 31. Items 2, 8, 14, 20, 26, and 32 pertain to the emotional variable. The social variable is measured by items 3, 9, 15, 21, 27, and 33. The physical variable is measured by items 4, 10, 16, 22, 28, and 34. Items 5, 11, 17, 23, 29, and 35 represent measurement of the spiritual variable. The intellectual variable is measured by items 6, 12, 18, 24, 30, and 36.

T.B. Adams (personal communication, October 30, 2007) provided instructions for scoring the PWS. The items, scored on a six-point Likert-type scale, range from 1 (very strongly disagree) to 6 (very strongly agree). While the other numbers, 2 – 5, have no descriptors above them, it is implied that the lower numbers indicate disagreement with the statement and the higher numbers indicate agreement with the statement. Harari, Waehler, and Rogers (2005) purport higher scores indicate a greater sense of wellness. According to Adams, Bezner, Garner, and Woodruff (1998), scores from the PWS range between three (3) and 29. Therefore, higher scores indicate a greater sense of wellness. Bezner et al. (1999) reported as perceived wellness scores increase, sense of wellness increases. T.B. Adams, however, reports that the PWS was designed out of the ipsative paradigm as opposed to the normative paradigm (personal communication February 25, 2008). Data are considered ipsative "…if a given set of responses always sum to the same total" (Meade, 2004, p. 531). The scores could then be used as a baseline for the individual and a repeat of the PWS at post-intervention would be done to determine if there is a difference.

Each subscale is scored by adding the numbers together and dividing that number by six (6). Items 2, 4, 7, 9, 11, 12, 14, 17, 20, 25, 27, 29, 31, 34, and 36 require reverse scoring as follows: 1 = 6, 2 = 5, 3 = 4, 4 = 3, 5 = 2, and 6 = 1.Through a series of other mathematical steps, the wellness scores are obtained. See Appendix G, Perceived Wellness Survey Research Scale Information and Instructions, for detailed steps for scoring the PWS.

Each subscale was designed so that it could be used as an independent measure of each dimension. Internal consistency reported for the subscales were physical (α = .81),

psychological (α = .71), emotional (α = .74), intellectual (α = .64), spiritual (α = .77), and social (α = .64). Discriminant validity was assessed using *t*-test comparison of composite scores of well and unwell groups (Adams et al., 1997).

Psychometric properties for the revised scale were as follows: convergent validity (r = .37 to .56) and internal consistency (α = .89 to .91). The total scale internal consistency was tested on a combined sample (n = 558) and α = .91. Internal consistency for the total scale ranged from α = .88 to .93 (Adams et al., 1997). Adams, Bezner, Drabbs, Zambarano, and Steinhardt (2000) report internal consistency for their study as α = .91. Alpha levels close to 1.00 indicates a very high internal consistency (Frank-Stromborg & Olsen, 1997).

Internal consistency for the PWS in the current study was α = .89. Internal consistency for the subscales in the current study were psychological (α = .61), emotional (α = .61), social (α = .43), physical (α = .74), spiritual (α = .63), and intellectual (α = .58). While the total wellness scores internal consistency was similar to Adams et al. (1997), the internal consistencies for the subscales were not. The subscales for the current study showed low reliability, with the exception of the physical wellness subscale. The total wellness scores, therefore, were used for analysis purposes. These scores ranged from a low of 8 to a high of 29. The individual subscale scores were not analyzed in conjunction with the other study variables since the primary investigator was interested in the total wellness scores.

Exercise: Stages of Change – Short Form. To assess the stages of change for exercise, the Exercise Stages of Change – Short Form Questionnaire (Appendix H) was utilized. This one-item questionnaire was chosen after receiving input from J.S. Rossi

(personal communication, March 31, 2006), one of the original researchers studying exercise behaviors using the Transtheoretical Model of Behavior Change (TTM). The Short Form was suggested as it is the one most often used and allows individuals to be easily classified into one of five stages of change for exercise (termination stage is not addressed on the questionnaire). Since Dr. Rossi was recommended by J.O. Prochaska (personal communication March, 20, 2006), one of the authors of the TTM, the primary investigator used his advice regarding this instrument.

This one-item questionnaire asks participants to choose one of five statements that best applies to their current exercise level. According to the definition provided, planned regular exercise (aerobics, bicycling, brisk walking, jogging, rowing, swimming, etc.) was performed as a way of increasing physical fitness. While this exercise should be performed for 20 to 60 minutes three (3) to five (5) times a week, it is not intended to be painful to be effective. Depending on the statement chosen, individuals are determined to be in Stage One, Precontemplation (do not intend to begin exercising in the next six months); Stage Two, Contemplation (intend to begin exercising in the next six months); Stage Three, Preparation (intend to begin exercising in the next 30 days); Stage Four, Action (have been exercising for less than six months); or Stage Five, Maintenance (have been exercising for more than six months).

Psychometric properties for the one-item questionnaire were not available (J. S. Rossi, personal communication March 31, 2006). Donovan, Jones, D'Arcy, Holman, and Corti (1998), however, conducted a study to assess the test-retest reliability of the stage of change short form using face-to-face interviews and telephone interviews. "The test-retest product moment was 0.59 and the k was 0.52." (p 289) Reliability coefficients were

also calculated separately for telephone (0.63) and face-to-face (0.53) interviews. The authors believed the low reliability may be due to individual perceptions about exercise and was a limitation to their study.

Providing the individual with a definition of exercise or physical activity may have demonstrated a greater reliability for this scale. The current study provided the participants with a definition in an effort to obtain a greater reliability for the scale. Further, previous studies have shown that the one-item questionnaire is an appropriate tool to assess stage of change for exercise (Cardinal, 1997; Hausenblas et al., 1999).

Demographic Information. To collect demographic information, the principal investigator developed a measure which consisted of nine (9) questions (Appendix A). The questions were a combination of fill-in-the-blank, multiple choices, or multiple answers. Age was to be filled in by the respondent on a blank line. Education level had one of five responses: no high school, some high school, high school graduate, some college, or college graduate. Employment status included one of the following: unemployed, employed part-time (less than 35 hours a week), employed full-time (more than 35 hours a week), or retired. Marital status had choices of single, married, divorced/separated, or widowed. Occupation had a blank line for the respondent to write in. Household annual income included six choices: less than $10,000; $10,000 to $19,999; $20,000 to $29,999; $30,000 to $39,999; $40,000 to $49,999; or $50,000 or more. Ages of dependent children living at home 18 years of age or younger (to include grandchildren) was asked with a blank line for the respondent to write in. History of CVD was asked as a multiple choice or multiple answers with the following: heart disease, high blood pressure, high cholesterol, other (with a blank line to fill in the answer), or

none of the above. The last question asked participants to indicate name of current prescribed medications with a blank line; if none, please write none.

Procedure

Institutional Review Board. Prior to conducting this study, the research proposal was submitted to Georgia State University's Institutional Review Board (IRB) for approval. Once IRB approval was obtained (Appendix I), training of research assistants began, identification of a community leader was made, and the data collection process began. A description of each follows.

Training of Research Assistants. Two AAW master's degree nursing students, from a local university, served as Research Assistants (RA). These RAs were provided with information on the purpose of the study, study protocol and guidelines, and the data collection process. The role of the RAs was to be present with the primary investigator at each church site to facilitate the data collection process and to answer simple questions that the participants may have had. They were also available to clarify a particular item on the questionnaire, if a participant had a question.

Identification of a Community Leader. The PI made contact with a colleague, who resides in Selma, AL, and is regarded as a community leader, for help in accessing the pastors at the four (4) church sites. This community leader was an African American female, age similar to the study participants, who was well connected in Dallas County and known in Selma, AL. The community leader made telephone contacts with the pastor of each of the four (4) churches to request permission for the PI to conduct the study at each site and to schedule a meeting for each pastor to meet with the PI. During her telephone conversations, the community leader also described the PI as an AAW who

was sensitive to the issues of the African American community. As a result of these telephone calls, permission was granted from the pastors of each church to talk with the women and recruit participants into the study (Appendix J).

Upon receiving permission from the pastors, the community leader and the PI discussed the four randomly selected churches. It was decided by the PI that one (1) church would be visited on each Sunday until the desired number of participants had been entered into the study.

Data Collection Process. The PI and the RAs met with each pastor at the beginning of the Sunday early morning service. After the early morning and late morning services, the pastors introduced the PI to the congregation, and the information session began. The PI was then provided an opportunity to describe the study in detail and asked if there was any interest in participating.

Once the PI described the purpose of the study to the congregation, the informed consent process was initiated. This included explaining the participants' rights to participate as outlined on the consent form (Appendix K). The informed consent process provided the individual with the information necessary to make an informed decision. The informed consent document was approved by IRB at GSU and was guided by both ethical and legal principles. Once the informed consent process was explained to the participants, they were invited to participate and the following data collection procedure was initiated:

Each participant was administered a coded packet which contained a copy of the informed consent (Appendix K), a questionnaire (Appendix A), a copy of the AHA (2006b) *Search Your Heart: Physical Activity* booklet (Appendix L), a nail file, and a ball

point pen, were given to each participant as a token of appreciation for participation. Tokens of appreciation have been provided to participants in other studies in the form of money (Banks-Wallace, 2000), lunch (Banks-Wallace, 2000; Goodwin, 2007), one-month aerobic exercise class post intervention (Young & Stewart, 2006), and raffling of books, candles, and other items (Banks-Wallace & Conn, 2005). Participants were informed that the questionnaire was to be returned once they finished answering the questions, and the other items in the packet were for their personal use. Time required for completion of the questionnaires was less than 60 minutes. The primary investigator, along with the RAs, distributed and collected all questionnaires during each session. No one requested the questionnaires be read to them. However, one asked if it was okay to place information related to her son's household since she resided with him, and another asked if it was okay to write her name on the questionnaire since she did not mind being identified. The RAs assisted these two participants by explaining that it was okay to include information related to the household of the participant's son, and encouraged the other participant not to include her name.

At the first church, 60 AAW participated after the late morning service; 55 were entered into the study. The second church had 17 AAW participants from both the early and late morning services; 8 were entered into the study. The third church had 45 AAW participants from both services; 43 were entered into the study. The fourth church had 69 AAW participants from the early morning service; 56 were entered into the study. A total of 191 participants completed the questionnaires. Twenty nine (29) of these participants did not meet the age requirement and, therefore, were not entered into the study. This resulted in a sample size of 162 participants for the study.

During the study, all questionnaires remained in a locked file in the possession of the primary investigator when not being transferred or analyzed. The questionnaires will remain in the locked file for approximately seven (7) years after the presentation and/or publishing of these results. At that time, determination will be made to continue to store or destroy the questionnaires. Confidentiality is assured by use of a code number on each questionnaire, as names were not collected. Participants were assured, therefore, that their identities would not be revealed in presentations, reports, or publications of the study.

Data Analysis and Research Questions

The data collected to answer the research questions guiding this study were analyzed using Statistical Package for the Social Sciences (SPSS) Version 15.0. The analysis included frequencies, means, and standard deviations. These measures were included because they provide a picture of the sample by describing the basic characteristics (Duffy & Jacobsen, 2001). Several other statistical analyses were conducted using SPSS Version 15.0. They included Pearson correlation, Chi-Square (χ^2), independent *t*-tests, one-way analysis of variance (ANOVA), and two-way ANOVA. Data analysis for each research question is listed below.

Research Question 1. Is there a significant relationship between perceived wellness and the individual AAW's stage of change for exercise? This was analyzed using a one-way ANOVA. One-way ANOVA was used because this analysis allowed one independent nominal level variable, with two or more levels, to measure the differences among group means (Munro, 2001) on perceived wellness.

Research Question 2. Is there a significant relationship between self-reported history of cardiovascular disease, perceived wellness, and the individual AAW's stage of

change for exercise? This question was analyzed using a two-tailed independent *t*-test and a two-way ANOVA. The independent *t*-test was used primarily to measure the differences between two group means on perceived wellness. The two-way ANOVA, on the other hand, was used to examine the effects of two independent nominal level variables (Munro, 2001) on perceived wellness.

Research Question 3. Is there a significant difference in the stage of change for exercise between AAW who self-report no history of CVD and those who self-report a history of CVD? A nonparametric technique, Chi-Square (χ^2), was used to help answer the research question regarding the existence of a relationship between two variables. It is used most commonly when there is a need to examine differences among two nominal level variables (Munro, 2001).

Research Question 4. Does age, income, education, marital status, or employment status significantly affect perceived wellness and stage of change for exercise among AAW? That question required several analyses. A two-tailed Pearson Correlation was conducted to analyze the relationship between age and perceived wellness. Pearson correlation is the statistical analysis used to mathematically state the relationship between two interval/ratio level variables. This correlation, which ranges from +1.00 to -1.00, describes the type of relationship as either positive (+), negative (-), or no relationship (0.00) (Munro, 2001). Another statistical analysis, χ^2, was used to assess the associations of education, employment status, marital status, or annual household income with stage of change for exercise. A one-way ANOVA was conducted to determine if there was an association between age and stage of change, specifically if mean age differed by stages of change. Once significance was determined, a post-hoc test, Tukey's Honestly

Significant Difference, was performed for comparison to determine which groups differed significantly from the other (Munro).

Summary

This research study employed a correlational descriptive design to determine if there was an association between perceived wellness scores of AAW and their stage of change for exercise. Four (4) randomly selected African American churches in Selma, AL, served as the setting. A convenience sampling technique was used to obtain the sample of 191 AAW participants. As 29 of the AAW did not meet the age requirement, a total of 162 volunteers were entered into the study.

Prior to data collection, the primary investigator elicited the assistance of a community leader who was instrumental in helping the investigator gain access into the community. This was facilitated by way of a personal introduction to the church pastors, since the investigator was not affiliated with any of the churches. This particular strategy has been successful in other studies involving AAW (Brown, 2004; Wilbur et al., 2006).

Data were collected and analyzed using SPSS Version 15.0. These analyses included frequencies, means, and standard deviations, to provide a description of the sample characteristics. Other statistical analyses included Pearson correlation, χ^2, Independent *t*-tests, one-way ANOVA, and two-way ANOVA.

CHAPTER IV

RESULTS

The purpose of this chapter is to present the analysis of the collected data. The research questions that guided this study were:

(1) Is there a significant relationship between perceived wellness and the individual AAW's stage of change for exercise?

(2) Is there a significant relationship between self-reported history of cardiovascular disease (CVD), perceived wellness, and the individual AAW's stage of change for exercise?

(3) Is there a significant difference in the stage of change for exercise between AAW who self-report no history of CVD and those who self-report a history of CVD?

(4) Does age, income, education, marital status, or employment status significantly affect perceived wellness and stage of change for exercise among AAW?

Data are organized and presented according to the description of the sample and four (4) research questions. The self-reported data were collected through the use of paper and pen questionnaires in a group setting. The descriptive data, which is related to the demographic characteristics of the sample, are presented first. Presentation of the findings related to each research question follows.

Data were analyzed using Statistical Package for the Social Sciences (SPSS), Version 15.0. The analyses included frequencies, means, and standard deviations. Other statistical analyses conducted included Pearson correlation, Chi-Square, independent

t-tests, one-way ANOVA, and two-way ANOVA. A complete description of the analyses follows.

Description of the Sample

Descriptive statistics were employed to analyze the demographic data of the sample. The findings indicated the ages of the women sampled ranged from 40 to 75 years (M = 53.45; SD = 9.94). Nearly half of the women (45.2%, n = 71) were married, while 54.8% (n = 86) were either single (22.9%, n = 36), divorced/separated (18.5%, n = 29), or widowed (13.4%, n = 21). Other demographic data are presented in Table1 which provides a detailed description of the education, employment status, annual household income, and number of children less than 18 years of age living at home.

The range, mean, and standard deviation of the total perceived wellness variable and its six (6) subscales for the total sample are presented in Table 2. The findings indicated that the total perceived wellness scores ranged from eight (8) to 29; the mean score was 15.76. Women reported highest wellness in the area of spirituality and lowest in the area of social wellness.

Table 1

Frequency Counts and Percentages of Demographic Variables (N = 162)

Variable	Frequency	Percentage[a]
Education		
No high school	7	4.3
Some high school	23	14.2
High school graduate	37	22.8
Some College	48	29.6
College Graduate	42	25.9
Missing	5	3.2
Employment status		
Unemployed	26	16.0
Employed part-time	16	9.9
Employed full-time	78	48.1
Retired	37	22.8
Missing	5	3.2
Annual household income		
Less than $10,000	27	16.7
$10,000 to $19,999	35	21.6
$20,000 to $29,999	27	16.7
$30,000 to $39,999	18	11.1

(Table 1 Continues)

(Table 1 Continued)

Variable	Frequency	Percentage[a]
$40,000 to $49,999	12	7.4
$50,000 or more	23	14.2
Missing	20	12.3
Children under 18 living at home		
None	54	33.3
One	32	19.8
Two	9	5.5
Three	4	2.5
Four	1	0.6
Missing	62	38.3

[a]Percentage may not equal 100 due to rounding of numbers.

Table 2

Descriptive Statistics for Total Perceived Wellness and Wellness Subscale

Variable	*N*	Observed range	Mean	*SD*
Total Perceived Wellness	162	8 to 29	15.76	3.55
Psychological[a]	162	11 to 36	28.81	5.58
Social[a, b]	161	13 to 36	26.83	4.91
Physical[a]	162	6 to 36	27.01	6.25
Spiritual[a]	162	14 to 36	30.31	5.17
Intellectual[a]	162	15 to 36	28.47	5.06
Emotional[a]	162	15 to 36	28.62	5.37

[a]Perceived Wellness Subscale. [b]One participant did not include data for social subscale.

The frequencies and percentages for the stages of change (SOC) for exercise and history of heart disease variables are presented in Table 3. The greatest percentage of respondents (30.9%, $n = 50$) reported being in the Maintenance SOC. Note that the majority of the total sample (51.3%, $n = 83$) reported being in the action or maintenance phase of the stages of change, suggesting that participants were actively participating in exercise. It is also noted that 43.2% ($n = 70$) reported having no history of CVD. A history of hypertension was the most frequently reported type of CVD (25.9%, $n = 42$) while heart disease was the least reported (1.2%, $n = 2$) by the sample.

Table 3

Frequency Counts and Percentages of Stage of Change and Cardiovascular Disease History Variables (N = 162)

Variable	Frequency	Percentage[a]
Stage of Change		
Precontemplation	19	11.7
Contemplation	23	14.2
Preparation	35	21.6
Action	33	20.4
Maintenance	50	30.9
Missing	2	1.2
History of Cardiovascular Disease		
Heart Disease	2	1.2
Hypertension (HTN)	42	25.9
Hyperlipidemia	6	3.7
Heart Disease and HTN	3	1.9
Heart Disease and Hyperlipidemia	2	1.2
HTN and Hyperlipidemia	17	10.5
Heart Disease, HTN, and Hyperlipidemia	8	4.9

(Table 3 Continues)

(Table 3 Continued)

Variable	Frequency	Percentage[a]
Other (variety of different diagnoses)	6	3.7
No History of CVD	70	43.2
Missing	6	3.7

[a]Percentage may not equal 100 due to rounding of numbers.

Diabetes was the most frequently reported among those who reported other diseases (6.2%, *n* = 10). Other reported diagnoses included heart murmur (1.2%, *n* = 2); rheumatoid arthritis (RA) (1.2%, *n* = 2); and asthma (1.2%, *n* = 2). One occurrence was reported for each of the following: chronic obstructive pulmonary disease (COPD), osteoarthritis (OA), back pain, nerves, cancer (unspecified), headaches (unspecified), lung (unspecified), carpal tunnel, depression, fibroids (unspecified), chronic bronchitis, and sinus. It is noted that some of the participants reported having one or more of the above diagnoses.

Data related to the names of current prescription medications were not answered consistently by the participants. For example, some participants left the area blank while others used layman's terms such as a "blood pressure pill", "several", "blood thinner", etc., instead of writing the names of the individual medications. Therefore, data analysis was not performed related to prescription medications. A listing of all medications reported by the sample may be found in Appendix M.

The Relationship between Perceived Wellness and Stage of Change for Exercise

Research Question One

The first research question asked: Is there a significant relationship between perceived wellness and the individual AAW's stage of change for exercise? A one-way analysis of variance (ANOVA) was used to test the relationship between the variables since there was only one independent variable (stage of change) and one dependent variable (perceived wellness) (Munro, 2001). Total wellness scores and all six sub-scale scores were tested with stage of change for exercise as the independent variable. The findings indicated that there was no statistically significant relationship between the total perceived wellness score and stage of change for exercise ($F = 1.059$, $p = .379$). Table 4 provides means and standard deviations for total wellness in relation to stage of change for exercise.

Table 4

Means and Standard Deviations for Total Perceived Wellness by Stages of Change for Exercise

	Total Wellness	
	Means	Standard Deviations
Precontemplation	14.81	2.76
Contemplation	15.05	3.06
Preparation	16.40	3.07
Action	15.50	3.69
Maintenance	16.19	4.19

The Relationship between Cardiovascular Disease, Stage of Change for Exercise, and Perceived Wellness

Research Question Two

The second research question asked: Is there a significant relationship between self-reported history of cardiovascular disease, perceived wellness, and the individual AAW's stage of change for exercise? To address this research question, two sets of procedures were conducted. First, a two-way ANOVA was conducted with history of CVD and stage of change for exercise as factors with perceived wellness as the dependent variable. A two-way ANOVA is the statistical analysis of choice when there are two or more nominal level independent variables, which, in this case, include history of CVD and stage of change, and one interval/ratio dependent variable, perceived wellness (Munro, 2001). Findings indicated no significant effect ($F = 1.154$, $p = .332$) of history of CVD and individual's stage of change ($F = 1.469$, $p = .216$) on perceived wellness. There was no significant interaction between CVD and stage of change ($F = 1.007$, $p = .458$).

The sample was further divided into two groups, participants with CVD (either heart disease alone or in conjunction with hypertension and/or hyperlipidemia) and participants without CVD. This division was done to compare the two groups in terms of their perceived wellness scores and stages of change. An independent *t*-test was the statistical analysis used to compare the total wellness means of the two groups (Munro, 2001). No statistically significant difference was found between the two groups ($t = -1.312$, $p = .191$).

No significant association was found when history of CVD and SOC were examined in relation to perceived wellness ($F = 1.007$, $p = .458$). Among the CVD group, the highest mean perceived wellness score was found in the Preparation Stage (Stage 3). Among the group without CVD, the highest mean perceived wellness score was found in the Maintenance Stage (Stage 5). Table 5 provides means and standard deviations of perceived wellness according to stage of change for exercise with and without CVD.

Table 5

Perceived Wellness Means and Standard Deviations by Stage of Change for Exercise with and without Cardiovascular Disease (CVD)

	Perceived Wellness					
Stage of Change	With CVD			Without CVD		
	n	*M*	*SD*	*n*	*M*	*SD*
Precontemplation	11	15.12	3.066	7	14.73	2.404
Contemplation	12	14.63	2.558	8	14.76	2.952
Preparation	15	16.11	3.039	18	16.45	3.152
Action	17	15.67	3.363	15	15.79	3.801
Maintenance	25	15.45	3.934	22	17.26	4.388

The Relationship between Cardiovascular Disease and Stage of Change for Exercise

Research Question Three

The third research question asked: Is there a significant difference in the stage of change for exercise between AAW who self-report no history of CVD and those who self-report history of CVD? Since both variables were nominal (history of CVD or no history of CVD, and stage of change for exercise), Chi-Square analysis was performed. This was done to determine if there were any significant differences in the proportions of persons with CVD and without CVD by stage of change (Munro, 2001). The findings indicated no significant differences between the two groups (χ^2 (2) = 1.825, p = .768). The percentages for those with and without CVD history according to stage of change for exercise are provided in Table 6. While no statistically significant associations between history of CVD and SOC were found, half of the sample (n = 81) reported being physically active. This physical activity had been for less than six (6) months (19.8%, n = 32), or greater than six (6) months (30.3%, n = 49).

Table 6

Stage of Change and History of Cardiovascular Disease (CVD) (N = 155)

Stage of Change	CVD History (*n* = 85) Percentage[a]	No CVD History (*n* = 70) Percentage[a]
Precontemplation	7.74	4.52
Contemplation	8.38	5.16
Preparation	10.32	11.61
Action	10.96	9.67
Maintenance	17.41	14.19

[a]Percentage may not equal 100 due to rounding of numbers.

The Relationship between Demographic Variables and Perceived Wellness and Stage of Change for Exercise

Research Question Four

The fourth research question asked: Does age, income, education, marital status, or employment status significantly affect perceived wellness and stage of change for exercise among AAW? Chi-Square analyses were conducted to determine if there were associations between stage of change and income, education, marital status, or employment status. No statistically significant associations were found (Table 7).

Table 7

Chi-Square Results for Stage of Change with Income, Education, Marital Status, and Employment Status

	χ^2	*p*
Income	19.195	.509
Education	19.859	.227
Marital Status	16.902	.153
Employment Status	14.026	.299

To further analyze the data, a one-way ANOVA was conducted to determine if there was an association between stage of change and age. While there was no statistically significant differences in age by SOC group ($F = 1.336$, $p = .259$), it was noted that the mean age of the participants reporting Precontemplation (Stage 1) was higher than those participants reporting Maintenance (Stage 5). Table 8 provides additional information related to these variables.

Table 8

Stages of Change and Age Means and Standard Deviations (N =155)

Stage of Change	*n* (%)	Age	
		M	*SD*
Precontemplation	19 (12.26)	56.58	10.287
Contemplation	22 (14.19)	54.18	10.121
Preparation	33 (21.29)	50.61	10.277
Action	31 (20.00)	53.06	8.944
Maintenance	50 (32.26)	54.50	9.888

To determine if there was a relationship between the variables age and perceived wellness, a 2-tailed Pearson Correlation, which is used to determine if there is a positive, negative, or no relationship (Munro, 2001), was the analysis of choice. Results indicated there was no statistically significant correlation between age and perceived wellness (r = -.049, p = .546).

A one-way ANOVA was performed to determine if there were statistically significant differences in perceived wellness by annual household income group. The ANOVA model was significant (F = 5.960, p = .000). Therefore, Tukey's Honestly Significant Difference (HSD), a post-hoc analysis, was conducted to examine which groups were significantly different. Post hoc testing decreases the likelihood of making a Type I error (Munro, 2001). See Table 9. Those earning less than $10,000 had

statistically significant lower mean perceived wellness scores ($p < .05$) than four (4) income groups earning $20,000 or more per year. The group reporting annual income of $10,000 to $19,999 showed no statistically significant difference from those earning less than $10,000. No other differences were noted among any of the other income groups.

To determine if perceived wellness differed by education, marital status, and employment status groups, three one-way ANOVAs were conducted. Perceived wellness was the dependent variable for all three analyses. If the ANOVA model was significant, Tukey's HSD were conducted to determine which means were significantly different. Significant ANOVAs were found for marital status ($F = 2.937$, $p = .035$) and employment status ($F = 5.333$, $p = .002$) with perceived wellness. Mean perceived wellness scores were significantly lower among the widowed group compared to the married and divorced/separated groups. The single group was not significantly different from any of the other marital status groups. In addition, mean perceived wellness scores were significantly lower among the unemployed group compared to those who were employed both full-time and part-time. No other statistical significance was found between any of the other groups.

The one-way ANOVA was not significant which compared the education groups on perceived wellness. Since significant ANOVA's were found comparing income, marital status, and employment status groups on perceived wellness, the means and standard error of the means for those three analyses are presented in Table 9.

Table 9

Means and Standard Error of Means of Perceived Wellness as a Function of Income, Marital Status, and Employment Status

	Mean	Standard error
Annual Income		
Less than $10,000	12.95 $_a$	.545
$10,000 to $19,999	15.40	.383
$20,000 to $29,999	16.08 $_b$	.687
$30,000 to $39,999	17.23 $_b$	1.197
$40,000 to $49,999	17.04 $_b$	.863
$50,000 or more	17.23 $_b$	.696
Marital Status		
Single	15.12	.455
Married	16.15 $_b$	.458
Divorced/Separated	16.56 $_b$	.715
Widowed	13.99 $_a$	.635
Employment Status		
Unemployed	13.89 $_a$	.700
Part-time	17.32 $_b$	1.313
Full-time	16.42 $_b$	.375
Retired	14.91	.426

Note: Means with subscript $_a$ were significantly different than means with subscript $_b$ at $p < .05$ for each variable.

Summary

An analysis of the collected data was organized and presented according to the four research questions that guided this research study. Using SPSS, Version 15.0, data were analyzed to determine the direction and magnitude of the relationship between perceived wellness and stage of change for exercise among rural AAW with and without a self-reported history of CVD. Descriptive statistics included frequencies, ranges, means, and standard deviations.

The sample consisted of 162 rural AAW. The mean age of this sample was 53.45 years, and the mean perceived wellness score was 15.76. Some college was reported by 29.6% (n = 48) while 25.9% (n = 42) reported graduating from college. Full-time employment was reported by almost half of the sample (48.1%, n = 78), and more than half of the participants (55%, n = 89) reported annual income of less than $30,000. More than one third of the participants (38.3%, n = 62,) did not respond to the question regarding number of children living at home under the age of 18, therefore, that variable was not analyzed with perceived wellness or stage of change. Since prescription medication responses were not consistently provided on the questionnaires, that variable was not analyzed with perceived wellness or stage of change for exercise. Maintenance, Stage 5, was reported by almost one-third of the participants (30.9%, n = 50). Hypertension was the most frequently reported form of CVD (25.9%, n = 42), while 43.2% (n = 70) of the participants reported no history of any type of CVD.

Research question number one attempted to determine if there was a significant relationship between perceived wellness and stage of change for exercise. A one-way ANOVA was conducted with no statistically significant findings. Research question

number two sought to determine if there was a significant relationship between self-reported history of CVD, perceived wellness, and stage of change for exercise. An independent samples *t*-test and a two-way ANOVA found no statistically significant differences in perceived wellness for CVD and SOC groups. Research question number three looked for a significant difference in the stage of change between those with CVD and those without CVD. Chi-Square analysis was conducted and no statistically significant relationship was found.

The fourth and final research question asked if demographics affected perceived wellness and stage of change. A Pearson Correlation was conducted and there was no statistically significant relationship between age and perceived wellness. Chi-Square analyses were conducted to assess for significant relationships between education, employment status, marital status, annual household income and stage of change for exercise; none was found. A one-way ANOVA was conducted to determine if there was an association between age and stage of change. Although no statistically significant differences were found, a trend was observed such that as age increased, lower levels of stage of change were reported.

A one-way ANOVA demonstrated significant differences in perceived wellness by annual household income. Those earning less than $10,000 had significantly lower mean perceived wellness scores than participants reporting income categories $20,000 or more per year. Three other one-way ANOVAs were performed to determine if perceived wellness differed by education, marital status, and employment status groups. Mean perceived wellness scores were significantly lower among the widowed group compared

to those who were married and divorced/separated. A discussion of the results and findings are reported in Chapter V.

CHAPTER V

DISCUSSION

A discussion of the major findings is presented in this chapter. Included in this discussion are conclusions related to each research question. Limitations to the study, implications for nursing, and suggestions for future research are also presented.

Overview of the Study

The purpose of this research was to describe rural AAW's perception of wellness in conjunction with their stage of change for exercise. This information was obtained by: 1) assessing perceived wellness of a sample of rural AAW; 2) ascertaining their current stage of change for exercise; 3) determining if there was an association between their perceived wellness and stage of change for exercise; 4) determining if there was an association between stage of change for exercise and history of cardiovascular disease (CVD); and 5) determining if there was an association between other demographic variables, perceived wellness, and stage of change for exercise. The research questions that guided this study were:

(1) Is there a significant relationship between perceived wellness and the individual AAW's stage of change for exercise?

(2) Is there a significant relationship between self-reported history of cardiovascular disease, perceived wellness, and the individual AAW's stage of change for exercise?

(3) Is there a significant difference in the stage of change for exercise between AAW who self-report no history of CVD and those who self-report a history of CVD?

(4) Does age, income, education, marital status, or employment status significantly affect perceived wellness and stage of change for exercise among AAW?

Major Findings

Sociodemographic Characteristics of the Sample

Major findings for the study indicate that African American women (AAW) in this sample were working, college educated, and had no children under the age of 18 living at home. The majority of the sample also had annual household incomes of less than $30,000. Close to half of the sample reported being married (43.8%, n = 71), and close to one fourth were single (22.2%, n = 36). The age of this sample ranged from 40 to 75 years with a mean age of 53.45 years. Some of the similarities and differences between the demographic characteristics of this study and previous research are discussed below. Demographic characteristics of the participants in this study were consistent with studies conducted by Goodwin (2007) and Young and Stewart (2006).

In a pilot study of rural AAW (in Henry County, AL) conducted by Goodwin (2007), findings showed that exercise was considered a means of maintaining wellness. Although the sample size for the focus groups was small (N = 10), the ages of that sample ranged from 50 to 75 (M = 58.6, SD 8.42); more than half (60%, n = 6) reported being married; and the majority of the sample (90%, n = 9) either graduated from high school (20%, n = 2), had some college education (40%, n = 4), or graduated from college (30%, n = 3). These findings are similar to the current study in that the participants were AAW from a rural community with a mean age of 53.45 years, and nearly half (45.2%) were

married. Another similarity to the current study is noted with respect to the education levels. While 90% of Goodwin's sample graduated from high school, had some college, or graduated from college, 81% of the current study sample reported similar educational attainment.

In a study comparing an aerobic exercise intervention with a stretching and health lecture intervention, Young and Stewart (2006) reported similar sociodemographic findings in their sample of urban AAW. The mean age of the aerobic group was 48.2 years and the stretch and health group was 48.4 years. Other similarities with the current study include a large number of married (60.3%, aerobic group; 49.3% stretch and health group) and employed (81.9%, aerobic group; 49.3% stretch and health group) participants.

Demographic findings from the current study are also similar to census tract data in Selma, AL. The most recent data published by the U.S. Census Bureau (2000) for Selma, AL, is for the year 2000. Although 2006 data are available for Dallas County, AL, data from 2000 are used for comparison with Selma, AL. Census Bureau data indicated 33.6% of Dallas County residents 25 years of age or older are high school graduates, and 29.8% of Selma, AL residents 25 years of age or older are high school graduates. The percentage of high school graduates in the current study is 23.6%, less than the published data. College graduates are reported as 19.5% for Dallas County, and 24.2% for Selma, AL (Census Bureau, 2000). In the current study, having a college degree was reported by 26.8% of the sample, which is similar to that of Selma, AL. The current study instrument did not allow the participant to indicate the type of college degree that was earned.

However, the published data used for comparison reflects associate, bachelor, and graduate or professional degrees (Census Bureau, 2000).

Household annual income of less than $30,000 was reported by 62.7% of the sample in the current study. It is not possible to provide an exact comparison with the published data as it is reported as household annual incomes of less than $35,000. For the year 1999, 63.8% reported annual household income less than $35,000 in Dallas County; 66.1% was reported for Selma, AL, residents.

The number of participants that provided a response for the number of children under the age of 18 living at home was 100 (61.7%); greater than one-third did not provide the information (38.3%, n = 62). The reason for the large number of participants not providing information is unclear. The wording on the instrument may have been confusing as leaving that area blank may have been their way of indicating none. This variable, therefore, could not be included in statistical analysis.

Previous studies concluded that increased age, low socioeconomic status, low socioeconomic position, and poor health status are associated with decreased physical activity (Sanderson et al., 2003; Speck & Harrell, 2003). Studies also suggest that higher incomes and higher education levels were associated with increased physical activity (Brady & Nies, 1999; Sanderson et al.). While no studies were identified that specifically addressed number of children living at home in correlation with perceived wellness and stage of change for exercise, Nies et al. (1999) reported lack of child care as a barrier to increasing physical activity. Speck and Harrell (2003) found those with small children at home tend to exercise less than those without small children at home. Thus one of the

reasons why the sample reported higher levels of activity may have been because of few younger children in the home.

Perceived Wellness and the Neuman Systems Model

The Neuman Systems Model (NSM) guided the perceived wellness portion of the study. The NSM is concerned with the whole person; the person is regarded as a client or client system (Neuman, 2002). The Perceived Wellness Survey (PWS), a 36-item, six-point Likert scale instrument, was used to measure the perceived wellness scores of the sample in the current study. The perceived wellness scores for this sample of 162 rural AAW ranged from a low of eight (8) to a high of 29. The mean score was 15.76 (*SD* = 3.55). Findings from this study are similar to Bezner et al. (1999), and James et al. (2003).

Bezner et al. (1999) reported the mean perceived wellness score of a sample of 243 hospital employees (of which 5% [*n* = 11] were African American) as 16.45 (*SD* = 3.82). Although similar to the mean perceived wellness score in the current study (15.76), the ages ranged from 24 to 72 (*M* = 39.5) which could explain the differences in the mean perceived wellness scores with the current study participants. Women in the Bezner et al. study were younger than participants in the current study. There is a possibility that younger women may perceive wellness differently than older women.

Based on the review of literature, it was hypothesized that there would be a relationship between perceived wellness and the stage of change for exercise. However, no statistically significant relationship was found in the current study sample of AAW. These findings do not support the findings of other studies (Bezner et al., 1999; Speck & Harrell, 2003) where a direct correlation was found between physical activity

(represented in the current study as stage of change for exercise) and perceived wellness, or physical activity and wellness (James et al., 2003). Possible explanations for the current study not finding significant associations related to perceived wellness and stage of change for exercise include issues related to the representation of AAW in the sample, age of the sample population, and selected demographic data. For example, Bezner et al. (1999) reported the mean perceived wellness score of a sample of 243 hospital employees as 16.45. However, only 5% (n = 11) of the sample were African American, and the mean age of the entire sample was reported as 39.5 years. In the study herein, the sample included 100 percent (N = 162) AAW with a mean age of 53.45 years. The differences in the samples could account for the differences in the findings. It is also noted that Speck and Harrell (2003) did not report race information and James et al. (2003) did not report age information.

The literature review identified no specific studies that addressed perceived wellness and age. However, Krummel et al. (2002) conducted a study to explore perceptions of CVD susceptibility among women and found older women (40 to 55 years old) were more likely to change their behavior in an effort to promote wellness than younger women (20 to 40 years old). Similarly, findings from the study conducted by James et al. (2003) suggested remaining physically active was a part of maintaining wellness and a healthy lifestyle among the sample which consisted of 99% AA and 72% female with an average age of 50 years. On the other hand, Baldwin et al. (2001) found an inverse relationship between age and self-health risks and health habits; specifically, participants 47 years and younger exhibited greater positive health habits than older participants. Based on the findings from Krummel et al. and James et al., it was,

hypothesized that a positive association would be found between perceived wellness and age. No statistically significant correlation was found between perceived wellness and age in the current study.

Annual household income was positively related to perceived wellness scores in the current study. Those earning less than $10,000 had statistically significant lower mean perceived wellness scores than higher income groups ($20,000 per year or greater). The exception was the group earning $10,000 to $19,999, as their mean wellness score was not significantly higher than the group earning less than $10,000. Once income reaches $20,000 or more, mean perceived wellness does not change significantly between the income groups. From the NSM perspective, the greater sense of wellness noted with incomes of $20,000 or more could be related to the sample having the ability to maintain an adequate lifestyle, secondary to the increased income, affording them with a greater sense of self-worth (psychological). Another thought from the NSM perspective is the greater sense of wellness could be related to increased income and access to adequate nutrition and housing (physiological).

Associations were found between marital status and perceived wellness in the current study. Mean perceived wellness scores were significantly lower among those who reported being a widow, when compared to those who reported being married or divorced/separated. Similarly, in a study investigating health-promoting activities in an older adult population, Callaghan (2005) found significant differences between widowed and married participants. Married participants had greater healthy behavior practices than widowed participants (Callaghan). From the NSM view, becoming a widow translates into losing a connection and support of the significant other (sociocultural, psychological)

and could explain the lower perceived wellness scores in the current study. The higher scores associated with the married sample may translate into maintaining the connection and support from the significant other (sociocultural). These findings are also similar to Fleury et al. (2001) who found, after a cardiac event, women who had a sense of connectedness with a significant other were able to maintain or regain their psychological wellness compared to women without a significant other. From the NSM perspective, higher perceived wellness scores (as seen with the divorced/separated group in the current study) may be reflective of a bad relationship which has been dissolved (divorced) or being resolved (separated). Getting out of a relationship that was not working may provide this group of women with a greater sense of fulfillment (psychological), leading toward a greater sense of wellness.

Mean perceived wellness scores were significantly lower for those who were unemployed when compared to those who were employed, either full-time or part-time. From a NSM view, there are several potential explanations for this finding. Unemployed participants may experience a lower sense of wellness that may be associated with lack of health insurance (physiological, psychological), lack of an income (physiological), or both, which may lead to increased stress (psychological). Being employed may provide this group with health insurance (psychological) which may assist in accessing the health care arena. As a member of the workforce, this group of AAW may experience a greater sense of self-worth related to their career (developmental), possess enough physical stamina to work outside the home (physiological), managing day-to-day stressors related to the working environment (psychological), and have a feeling of connection within the working community (sociocultural).

No specific studies were identified that described perceived wellness in relation to annual income, level of education, or employment status. However, several studies cite neighborhood deprivation as a variable associated with perceived wellness. For example, Stimpson et al. (2007) found that as the level of neighborhood deprivation increased, the level of health risk behavior increased. Level of neighborhood deprivation was assessed according to several variables, including household income, years of education, and employment status. It is reasonable to believe that perceived wellness scores would likely be decreased accordingly, as socioeconomic status decreases. Therefore, findings from the Stimpson et al. study broadly support the findings related to SES of the participants from the current study. Similarly, Rose et al. (2004) found women who were employed had lower cardiac mortality which was thought to be secondary to increased self-esteem and socioeconomic status. Callaghan (2005) found older adults with higher socioeconomic status (described as higher incomes and college educated) exhibited greater health promoting behaviors than those in lower socioeconomic status.

Stage of Change for Exercise and the Transtheoretical Model of Behavior Change

The Exercise Stage of Change – Short Form, a one-item questionnaire, was utilized to assess the stage of change for exercise of the sample in the current study. A definition of regular exercise (Cancer Prevention Research Center, 1991) was provided as any planned activity (including aerobics, bicycling, brisk walking, jogging, rowing, swimming, etc.) that is performed three to five times a week to increase physical fitness; each session should be performed between 20 and 60 minutes. Participants chose one answer based on the above definition and their current physical activity level. They were placed into one of five stages. Precontemplation, stage one (1), is defined as not having

any intention to participating in any planned exercise in the next six months. Contemplation, stage two (2), is having an intention to participate in planned exercise within the next six months. Preparation, stage three (3), is intending to participate in planned exercise within the next 30 days. Action, stage four (4), is actively participating in planned exercise for less than six (6) months. Maintenance, stage five (5), is actively participating in planned exercise for more than six (6) months.

Half of the participants in the current study reported either being in the Action (Stage 4) or Maintenance (Stage 5) stages. This finding was not consistent with previous studies which consistently report AAW as having a high rate of physical inactivity (Ainsworth et al., 1999; Powell et al., 2006; Suminski et al., 2002). Bedinghaus et al. (2001) reported 57% of women of color were physically inactive, while Brownson et al. (2000) reported rural women 40 years old and older, in general, were 33% more likely to be physically inactive. Martin et al. (2005) reported that the highest prevalence for physical inactivity was seen in the most rural areas (33.1%) when compared to middle and urban areas (25.7% to 25.9%), and Reis et al. (2004) reported the highest level of physical inactivity is seen in the southern region.

It is noted in the current study, the Preparation Stage (planning to initiate an exercise program within the next 30 days) was reported by 21.6% of the sample. A little over one-fourth reported being in the inactive stages, the Precontemplation Stage (no plans to begin an exercise regimen within the next six (6) months) and the Contemplation Stage (planning to begin an exercise regimen within the next six (6) months) The majority of the sample (72.9%) were either preparing to start a planned exercise regimen

in the next 30 days, or they have been actively participating in a planned exercise regimen.

There are several potential explanations as to why the sample in the current study was different from previously published findings. The widely publicized benefits of physical activity could be responsible for raising the awareness and participation of rural AAW. For example, new technology, specifically computer access which in turn translates to greater access to health information, may have reached this rural community and made a positive impact on the long-term benefits of remaining physically active.

It is possible that the current study participants have computer access at their place of employment, as 58% reported being employed either part-time (10%, n = 16) or full-time (48%, n = 78). Study participants may have had access to a home computer as 50% reported annual household incomes of $20,000 or more. While no studies were identified that specifically addressed rural AAW and computer access, Bleakley, Merzel, VanDevanter, and Messeri (2004) found 55 percent of the 279 urban respondents (51% female; 81% AA; 15 to 30 year olds) reported using the internet for health information. Similarly, Kind, Huang, Farr, and Pomerantz (2005) found 93 percent of the 260 AA respondents agreed that the internet was a source to obtain useful health information. Although computer access was not assessed in the current study, future research should be directed toward determining if rural AAW benefit from the availability of the internet for health promotion information.

Another explanation for the high reported physical activity is the current study sample was recruited from rural churches. James et al. (2003) reported findings in a study of AAW who were also recruited from churches in a southern state (North Carolina). In

that study, 54% were reported as being physically active. Perhaps belonging to a church provided these women with a greater sense of awareness of health-promoting behaviors or group support or approval. In a study to examine physical activity, the link between health behaviors and spirituality, and the role of the AA church, Bopp, Lattimore, Wilcox, et al. (2006) found AAW "…seek to gain strength from God to be physically active...and the church institution promotes spiritual, mental and physical well-being" (p. 822).

Another possible explanation for the highly physically active sample could be in relation to the physical activity facilities available in Selma, Alabama. While the current study did not address physical activity facility availability in this rural community, an internet search revealed a noteworthy find. According to the Official Website of Selma, AL (2008), community facilities available include 1 bowling alley, 1 skating rink, 19 ball fields, 11 basketball courts, 1 swimming pool, 2 golf courses, 1 state park, 1 country club, 2 health clubs, 11 playgrounds, 2 YMCA locations, and 3 parks. Contrary to the findings reported by Powell et al. (2006), this largely African American community has access to different types of facilities (public parks, membership sports and recreation clubs, public golf courses, and physical fitness facilities). Although having access to physical activity facilities was not assessed in the current study, future research should be directed towards determining if access to physical activity facilities affords rural AAW with opportunities to enhance their health-promoting activities.

Stage of change for exercise in conjunction with age was tested using a one-way ANOVA. While no statistically significant association was found, it was noted that mean age for the participants reporting Precontemplation (Stage 1) was higher than participants

reporting Maintenance (Stage 5). This trend suggests as age increases, stage of change for exercise decreases. The average age of the sample in the current study was 53.45 years in which 51.9% were physically active. Similar findings were reported by James et al. (2003) in which 54% of AAW were physically active, and their average age was 50 years. Younger rural AAW have been shown to exhibit higher levels of leisure-time physical activity (Sanderson et al., 2003). Morbidity & Mortality Weekly Report (2006) reports as age increases, incidence of engaging in regular leisure-time physical activity decreases in women. Speck and Harrell (2003) report findings which indicated older women tend to exercise less than younger women. These findings are consistent with the trend seen in the current study.

There was no association between annual household income and stage of change for exercise. While not statistically significant, a smaller proportion of participants were noted to be in the lower stages (Precontemplation, Stage 1; Contemplation, Stage 2; and Preparation, Stage 3) among those reporting incomes of $50,000 or more when compared to those reporting incomes of less than $10,000, $10,000 to $19,999, and those reporting incomes of $20,000 to $29,999. Stimpson et al. (2007) found physical inactivity rates increased as SES decreased. Sanderson et al. (2003) found higher incomes among rural AAW in Alabama to correlate with increased physical activity. These findings were not consistent with the current study results.

No statistically significant relationship was found between education and stage of change for exercise. However, a trend was noted in that as level of education increased, the number of participants reporting higher levels of stage of change for exercise increased. This trend suggests those with higher education have been participating in

physical activity longer than those with less education. Almost two-thirds of the current study participants reported some college (*n* = 48) or college graduate (*n* = 42), suggesting a highly educated sample. Other studies have found a positive correlation between exercise and levels of education among both urban (Speck & Harrell, 2003) and rural (Patterson et al., 2004; Sanderson et al., 2003; Wilcox et al., 2003) women. The trend in the current study findings is consistent with these studies.

While no statistically significant association was found between employment status and stage of change for exercise, a trend was noted where the greatest number of participants reporting Stage 5, Maintenance, were among those working full-time. Another trend was noted in those who reported working full-time also reported planning to begin an exercise program, Stage 3, Preparation, at a greater number than the other groups.

Cardiovascular Disease

CVD did not have a significant relationship with perceived wellness, and there were no statistically significant differences in the perceived wellness mean scores between those who reported CVD and those who reported no CVD. A trend was noted, however, which showed the greatest number of participants, with and without a history of CVD, were in the Maintenance Stage (Stage 5). Among the CVD group, those in the Preparation Stage (Stage 3) had the highest mean perceived wellness score. This trend suggests those with a higher sense of perceived wellness are ready to begin a plan of exercise within the next 30 days. No studies were identified that examined the difference between those who report no CVD and those who reported CVD.

CVD is a major problem for American women, and AAW are affected at a disproportionately high rate (AHA, 2006a). Diez-Roux et al. (1999) found AAW to have a greater number of CVD risk factors than their male counterparts. Two women reported a history of heart disease, while 25.9% of the sample in the current study reported a history of hypertension. It is also noted that 43.2% reported no history of any type of CVD. There are several potential explanations for the current study findings. As found by Yawn et al. (2004), women 70 years of age and older at the time of MI diagnosis were more likely to receive diagnosis and preventive information related to coronary heart disease (CHD) than women younger than 70 years of age. The mean age of the sample in the current study was 53.45 years. They may not have been exposed to information related to CHD or CVD and, therefore, may be unaware of their current status.

More than half of the women in the current sample were employed either part-time or full-time, which may explain the relatively low rate of reported CVD among the sample in the current study. Rose et al. (2004) found that women who were employed, compared to those who were homemakers, had lower mortality related to CVD, which was thought to be due to increased self-esteem or increased socioeconomic status associated with working outside the home. Another potential explanation for the low rate of reported CVD among the current study sample could be related to the high rate of physical activity. This was consistent with other study findings. For example, in a prospective cohort study of 5,125 female nurses with diabetes between the ages of 30 and 55 years, Hu et al. (2001), reported a strong association between physical activity and decreased risk for CVD.

On the demographic portion of the questionnaire, a request was made to list current medications. While some participants provided the medications, it is unclear why the majority of the participants answered this particular question inconsistently or did not specifically indicate what medicine they were taking. Some responded by either stating "1 pill" or "BP pill" or "Some for all of the above". Because of the inconsistencies, information related to prescribed medications was not analyzed.

Research Questions

Research Question One

The first research question was: Is there a significant relationship between perceived wellness and the individual AAW's stage of change for exercise? There was no statistically significant relationship between stage of change for exercise with total perceived wellness or any of the six sub-scales. While no specific studies were identified that examined the relationship between perceived wellness and stage of change for exercise, Bezner et al. (1999) found a relationship between quantity of physical activity and measures of wellness. In other words, the more one exercises, the greater their perceived wellness. The mean age of the Bezner et al. sample was 39.5 years compared to the current study sample which was 53.45 years. The differences in the age groups of these two studies could explain the differences in the findings.

Research Question Two

The second research question was: Is there a significant relationship between self-reported history of cardiovascular disease, perceived wellness, and the individual AAW's stage of change for exercise? No statistical significance was found between the stage of change and history of CVD as factors of perceived wellness. While other studies have

identified AAW as having high rates of CVD (Diez-Roux et al., 1999), it has also been reported by Yawn et al. (2004) that women younger than 70 years of age are less likely to receive preventive information related to CVD. An explanation for the small number of AAW in the current study who reported a history of CVD could be due to a lack of knowledge related to their CVD status as reported by Yawn et al. (2004).

Research Question Three

The third research question was: Is there a significant difference in the stage of change for exercise between AAW who self-report no history of CVD and those who self-report history of CVD? The findings indicated no significant differences between the two groups. No studies were identified that examined the difference between the stage of change for exercise among women with and without CVD. However, Branch et al. (2000) found moderate-intensity physical activity provided improvement in cardiorespiratory fitness comparable to high-intensity physical activity, and Hu et al. (2001) found an inverse correlation between physical activity and risk for CVD. Lack of a statistically significant difference, therefore, could be secondary to the high rates of physical activity (reported as stage of change for exercise), and the low rates of self-reported CVD.

Research Question Four

The fourth research question was: Does age, income, education, marital status, or employment status significantly affect perceived wellness and stage of change for exercise among AAW? No statistical significance was found between perceived wellness and age, and no trends were noted. Although no statistically significant association was found between stage of change and age, a trend was seen between these two variables. As age increased, stage of change for exercise decreased. This trend was consistent with

other study findings (Morbidity and Mortality Weekly Report, 2006; Sanderson et al., 2003).

Brady and Nies (1999) reported a positive correlation between income and physical activity. However, in the current study, there were no statistically significant relationships between stage of change for exercise with education, employment status, marital status, or annual household income. Trends were seen with employment status as the greatest proportion of participants in the Maintenance Stage (Stage 5) reported working full-time, suggesting this sample was able to find time to be physically active, for greater than six (6) months, despite their work schedules. Another trend was seen with respect to marital status. Participants who reported being married had the highest number in the Maintenance Stage (Stage 5), suggesting that this sample remains physically active despite domestic responsibilities. No other trends were noted between these demographic variables.

Annual household income was positively correlated to perceived wellness scores. Participants who reported income of less than $10,000 annually had significantly lower perceived wellness scores than those who reported income greater than $20,000 annually. Associations were found between marital status and employment status with perceived wellness. Mean perceived wellness scores were found to be significantly lower among the widowed group when compared to the married and divorced/separated groups. Mean wellness scores were found to be significantly lower among the unemployed group when compared to the employed group (both part-time and full-time).

As previously stated, studies that examine relationships between certain demographics and perceived wellness have not been identified. However, the findings

from Stimpson et al. (2007) related to neighborhood deprivation can broadly provide a context to examine the findings in the current study. Trends found in the current study related to stage of change for exercise and demographics are consistent with other studies (Patterson et al., 2004; Sanderson et al., 2003; Speck & Howell, 2003; Stimpson et al.; Wilcox et al., 2003). Although a trend was noted suggesting as age increased, stage of change decreased, this relationship was not statistically significant in the current sample. It has previously been reported that an inverse correlation has been found between age and physical activity, (Morbidity & Mortality Weekly Report, 2006; Sanderson et al.; Speck & Howell).

Conclusions

Limitations of the Study

Several limitations of the study were identified and they are related to the study design and the instrument used. Social desirability may have been present in participants' responses. Study participants may have had knowledge about the investigator and felt a need to help, or to have the researcher think positively about them. Both of these instances may have occurred after the first church session, as news travels quickly in small, rural towns. Thus the women may have over reported their exercise behavior or wellness because of social desirability reasons.

The study was limited to volunteers. Participants may have believed they would reap some unknown benefit from participation. The geographic area, as the sample was obtained from one city in a rural county, is a limitation. Generalizing the findings to other regions or areas may not yield similar findings. As a group, African Americans are less likely to volunteer for research (Smith, Johnson, Newman, Greene, Johnson, & Rogers,

2007). It is also unknown how AAW volunteers differ from those who do not volunteer and how this might affect study results.

Income and education levels of the church participants may be similar and not representative of the general population or the AA population, as overall, the women had higher incomes and were employed. However, the description of the sample included household income and education levels, therefore making it possible to compare the study findings with studies in other populations with similar demographics.

Another limitation to this study was no data were obtained related to number of people living in the household. This diminished the use of the household income variable as a measure of socioeconomic status. Also, determining whether participant's income is above or below the poverty threshold was not possible.

Another study limitation was inability to obtain data related to number of sample in the Termination Stage (Stage 6) of change for exercise. Termination is when someone has been exercising for greater than 5 years and it is as though the unhealthy behavior, in this case physical inactivity, was never a part of their life (Prochaska, Norcross, et al., 1994). That information would have enriched the findings as the other two physically active stages provide information related to being physically active less than six (6) months (Action), or greater than six (6) months but less than five (5) years (Maintenance). The instrument utilized provided instructions to choose the Maintenance stage if they have been exercising greater than six (6) months (Appendix A). While the largest group reported being the in the Maintenance Stage of Change, there is no way of knowing if a subset of this group were women who had been physically active for greater than 5 years.

The SOC questionnaire is another study limitation. Few studies were identified that utilized the SOC questionnaire with AA. Therefore, the validity of the SOC questionnaire for use with the AA population has not been established.

Cross-sectional data were collected from the sample. This design is useful for examining groups simultaneously at varying stages of development. However, since this data were collected at one single point in time, it is another limitation to the study.

Lastly, another limitation to the study is the atypical sample. As previously stated, the sample consisted of highly educated AAW living in one rural county. A great proportion of these women also reported being physically active, while previous studies report AAW have a high rate of physical inactivity (Ainsworth et al., 1999; Powell et al., 2006; Suminski et al., 2002). This sample, therefore, may not be representative of rural AAW.

Lastly, while the NSM definition of wellness is similar to Adams et al. (1997) definition, it is not clear if the use of the NSM in this study helped to adequately explain rural AAW's participation in wellness activities in relation to their culture and experiences with physical activity in the community. Future studies should explore the use of the NSM in similar African American sub-populations.

Implications for Nursing

Nurses are in unique positions to assist with dissemination of research findings. The results of this study imply that many of these rural AAW are preparing to begin an exercise routine within the next 30 days, or are currently active in a planned exercise routine. Nurses, therefore, can assist this population by reinforcing the importance of implementing and maintaining an adequate level of physical activity. Findings also

suggest that perceived wellness was not related to exercise stages, but rather lower income, being widowed, and being unemployed were related to lower perceived wellness. Thus assessments and interventions to increases wellness need to include demographic/social issues.

Nursing Practice. Nurses in primary care include staff nurses as well as advanced practice nurses (nurse practitioners, clinical nurse specialists, nurse midwives, etc.) who may function as healthcare providers. By acknowledging the AAW who maintains a lifestyle of health promotion which includes increased physical activity, the nurse can encourage the AAW to continue the regimen and provide suggestions for increasing physical activity as needed. Each visit should include an assessment of the current physical activity behavior and methods or types of activities, and how they seem to be working. For the AAW who is not currently physically active, the nurse can act as a facilitator of change by assessing the individual's readiness for change.

Nursing Research. The results of this study provide information related to the church-going, rural AAW aged 40 to 75 years, in one rural city in Alabama, and their physical activity trajectory. Strategies can be developed that address assisting with progression to the next stage of change for exercise. Interventions should be designed to allow women to become active participants in health promotion, and assist with increasing perceived wellness. Through identification of the AAW's perception of wellness and stage of change for exercise, nurses will be in a better position to address the disease prevention and health promotion needs of this population.

No single interventional strategy works for everyone, therefore, stage-specific interventions should be adapted to the individual's needs. For example, assessing the

individual rural AAW's readiness to begin or maintain health promoting behaviors is one way of meeting this demand. By using assessment tools, such as the PWS and Exercise: Stage of Change – Short Form, an evaluation of the current wellness perception and exercise level of the individual can be made. Stage- and population-specific interventions can be initiated which assist the AAW with progression to the sixth and final stage, Termination.

Recommendations for Future Research

Future research should include replications of the current study in a different rural community for comparison. Another recommendation for future research would include comparison of rural AAW and urban AAW to determine if there are significant differences. With adequate and equal sample sizes, future research should also include rural women from all ethnic groups for comparison. Gathering information related to the different ethnic groups would also add to the current body of nursing knowledge.

In addition to exploratory and descriptive studies, the next likely step would be intervention studies. This could be done by developing interventional studies to assist rural AAW with progressing to a higher stage of change for exercise. Those studies could then be broadened to include other rural minority women as well as comparing them with their urban counterparts.

Study Summary

Over the last decade, there has been a decline in CVD morbidity and mortality in the US. Prior to the 1990's, CVD was not considered a major concern for women. CVD is the leading cause of death among women in the US (Bedinghaus et al., 2001; Finkelstein et al., 2002), and AAW have a disproportionately high rate of deaths from

heart disease (Ma'At et al., 2002). As life expectancy increases for women, problems with CVD will pose a serious threat to their well-being. Physical inactivity, a modifiable risk factor for CVD (AHA, 2003), plays a major role in CVD development. It has been reported that some rural women have low rates of physical activity (Sanderson et al., 2003), and data indicate 39% of White women and 57% of women of color (Bedinghaus et al.) are physically inactive. In the current study, 47.5% of the sample reported being physically inactive. Recommendations were made to replicate the study using rural women from all ethnic groups as well as comparing rural women to their urban counterparts.

The two main goals of Healthy People 2010 are to increase the years and quality of healthy life and to eliminate health disparities (DHHS, 2000). AAW have been identified as having a disproportionately high mortality and morbidity rate related to CVD and a high rate of physical inactivity (AHA, 2002). If positive cardiovascular health outcomes for rural AAW are to be realized, the issue of physical inactivity must be addressed.

The major purpose of this study was to obtain information to describe rural AAW's perception of wellness in conjunction with their stage of change for exercise. This information was obtained from the participants by way of a pen and paper questionnaire. The questionnaire was designed to obtain the perceived wellness score, current stage of change for exercise, and demographics of each participant. Analyses were conducted to determine if there was an association between perceived wellness and stage of change for exercise; stage of change for exercise and CVD; other demographic variables, perceived wellness, and stage of change for exercise.

Four (4) rural churches in Selma, Alabama, provided participants for this study. Out of the 191 women who agreed to participate, 162 rural AAW met the age criteria and were entered into the study. After providing information related to the study and obtaining informed consent, questionnaires were completed by the sample.

Data analysis revealed no statistically significant relationship between perceived wellness and stage of change for exercise; perceived wellness and CVD; or CVD and stage of change for exercise. The sample in the current study reported being physically active at a greater rate than has previously been reported (Ainsworth et al., 1999; Bedinghaus et al., 2001; Powell et al., 2006; Sanderson et al., 2003; Suminski et al., 2002). While a trend was seen between age and stage of change for exercise, there were no statistically significant associations between age and stage of change for exercise or age with perceived wellness in the current study. This is inconsistent with previous study findings (Morbidity & Mortality Weekly Report, 2006; Speck & Howell, 2003). As seen in previous studies (Patterson et al., 2004; Sanderson et al., 2003; Speck & Howell; Stimpson et al., 2007; Wilcox et al., 2003), annual household income and employment status were positively correlated with perceived wellness in the current study.

The ages of these rural AAW ranged from 40 to 75 years, with a mean age of 53.45. The mean score for perceived wellness was 15.76. Physical activity was reported by more than half of the sample. Maintenance, the highest stage of change assessed in this study, was the most frequently reported among the sample. While 1.2% reported a history of heart disease, greater than one-fourth reported a history of hypertension. It is also noted that almost half reported no history of CVD.

One explanation for the low rate of reported heart disease in this sample may be the high rate of physical activity. As previously reported, CVD is reduced when physical activity is increased (Hu et al., 2001). Since greater than one third did not respond to the question regarding children living at home 18 years of age and younger, it was not analyzed. Of the participants that did respond, 54% reported no children under 18 years of age living at home; this may be another explanation for the high rate of physical activity seen in this sample.

Assessing a person's perception of wellness provides a multidimensional, wholistic view of the individual's health perception. Measuring their perceived wellness and stage of change for exercise will provide insight for development of interventions that address the issues that are of importance to the individual. These tailored interventions will lead to greater success in assisting the AAW with behavior changes aimed at increasing their physical activity and ultimately their perceived wellness.

This study contributes to the current body of knowledge in nursing by providing a preliminary knowledge base of rural AAW's exercise behaviors, perceived wellness, and factors that correlate with both. Information derived from the findings provides a picture of rural AAW's health-promoting behaviors that may be useful for developing programs designed to assist rural AAW with progressing into the next stage of change for exercise.

References

Adams, T. B., Bezner, J. R., Drabbs, M. E., Zambarano, R. J., & Steinhardt, M. A. (2000). Conceptualization and measurement of the spiritual and psychological dimensions of wellness in a college population. *Journal of American College of Health, 48*, 165-173.

Adams, T., Bezner, J., Garner, L., & Woodruff, S. (1998). Construct validation of the perceived wellness survey. *American Journal of Health Studies, 14*(4), 212-219.

Adams, T., Bezner, J., & Steinhardt, M. (1997). The conceptualization and measurement of perceived wellness: Integrating balance across and within dimensions. *American Journal of Health Promotion, 11*(3), 208-218.

Adams, S. A., Der Ananian, C. A., DuBose, K. D., Kirkland, K. A., & Ainsworth, B. E. (2003). Physical activity levels among overweight and obese adults in South Carolina. *Southern Medical Journal, 96*(6), 539-543.

Ainsworth, B. E., Irwin, M. L., Addy, C. L., Whitt, M. C., & Stolarczyk, L. M. (1999). Moderate physical activity patterns of minority women: The cross-cultural activity participation study. *Journal of Women's Health & Gender-Based Medicine, 8*(6), 805-813.

American Heart Association. (2002). *ATP III Final Report: Rationale for intervention*. Retrieved November 15, 2004, from http://circ.ahajournals.org/cgi/content/full/106/25/3163?maxtoshow=&HITS=10&

American Heart Association. (2003). *Heart Disease and Stroke Statistics – 2004 Update*. Dallas: American Heart Association.

American Heart Association. (2006a). *Women and Coronary Heart Disease*. Retrieved January 12, 2006, from http://www.americanheart.org/presenter.jhtml?identifier=2859

American Heart Association. (2006b). *Search Your Heart: Physical Activity.* Retrieved June 11, 2007, from http://www.americanheart.org/downloadable/heart/1156966821600SYH_PhyActivity_Repros.pdf

American heritage college dictionary (4th ed.). (2002). Boston, MA: Houghton Mifflin Company.

Angard, N., Chez, R. A., & Young, C. (1998). Personal health among midlife women hospital employees. *Journal of Women's Health, 7*(10), 1289-1293.

Arcury, T. A., Snively, B. M., Bell, R. A., Smith, S. L., Stafford, J. M., Wetmore-Arkader, L. K., & Quandt, S. A. (2006). Physical activity among rural older adults with diabetes. *The Journal of Rural Health, 22*(2), 164-168.

August-Brady, M. (2000). Prevention as intervention. *Journal of Advanced Nursing, 31*(6), 1304-1308.

Baldwin, K. A., Humbles, P. L., Armmer, F. A., & Cramer, M. (2001). Perceived health needs of urban African American church congregants. *Public Health Nursing, 18*(5), 295-303.

Baltrus, P. T., Lynch, J. W., Everson-Rose, S., Raghunathan, T. E., & Kaplan, G. A. (2005). Race/ethnicity, life-course socioeconomic position, and body weight trajectories over 34 years: The Alameda County Study. *American Journal of Public Health, 95*(9), 1595-1601.

Banks-Wallace, J. (2000). Womanist ways of knowing: Theoretical considerations for research with African American women. *Advances in Nursing Science, 22*(3), 33-45.

Banks-Wallace, J., & Conn, V. (2002). Interventions to promote physical activity among African American women. *Public Health Nursing, 19*(5), 321-335.

Banks-Wallace, J. & Conn, V. (2005). Changes in steps per day over the course of a pilot walking intervention. *Association of Black Nursing Faculty Journal, 16*(2), 28-32.

Banks-Wallace, J., Enyart, J., & Johnson, C. (2004). Recruitment and entrance of participants into a physical activity intervention for hypertensive African American women. *Advances in Nursing Science, 27*(2), 102-116.

Bedinghaus, J., Leshan, L., & Diehr, S. (2001). Coronary artery disease prevention: What's different for women? *American Family Physician, 63*(7), 1393-1400.

Bezner, J. R., Adams, T. B., & Whistler, L. S. (1999). The relationship between physical activity and indicators of perceived wellness. *American Journal of Health Studies, 15*(3), 130-137.

Bleakley, A., Merzel, C. R., VanDevanter, N. L., & Messeri, P. (2004). Computer access and internet use among urban youths. *American Journal of Public Health, 94*(5), 744-746.

Bopp, M., Lattimore, D., Wilcox, S., Laken, M., McClorin, L., Swinton, R., Gethers, O., & Bryant, D. (2006). Understanding physical activity participation in members of an African American church: A qualitative study. *Health Education Research, 22*(6), 815-826.

Brady, B. & Nies, M. A. (1999). Health-promoting lifestyles and exercise: A comparison of older African American women above and below poverty level. *Journal of Holistic Nursing, 17*(2), 197-207.

Branch, J. D., Pate, R. R., & Bourque, S. P. (2000). Moderate intensity exercise training improves cardiorespiratory fitness in women. *Journal of Women's Health & Gender-Based Medicine, 9*(1), 65-73.

Brown, D. J. (2004). Recruitment of Black Americans for research: A model of success. *The Journal of Multicultural Nursing & Health, 10*(3), 19-23.

Brownson, R. C., Eyler, A. A., King, A. C., Brown, D. R., & Sallis, J. F. (2000). Patterns and correlates of physical activity among US women 40 years and older. *American Journal of Public Health, 90*(2), 264-270.

Burbank, P. M., Reibe, D., Padula, C. A., & Nigg, C. (2002). Exercise and older adults: Changing behavior with the Transtheoretical Model. *Orthopaedic Nursing, 21*(4), 51-63.

Burke, G. L., Arnold, A. M., Bild, D. E., Cushman, M., Fried, L. P., Newman, A., Nunn, C., & Robbins, J. (2001). Factors associated with healthy aging: The cardiovascular health study. *Journal of the American Geriatrics Society, 49*(3), 254-262.

Burnette, M. M., Meilahn, E., Wing, R. R., & Kuller, L. H. (1998). Smoking cessation, weight gain, and changes in cardiovascular risk factors during menopause: The healthy women study. *American Journal of Public Health, 88*(1), 93-96.

Burns, N. & Grove, S. K. (2001). *The practice of nursing research: Conduct, critique, & utilization* (4th ed.). Philadelphia: W. B. Saunders.

Callaghan, D. (2005). Healthy behaviors, self-efficacy, self-care, and basic conditioning factors in older adults. *Journal of Community Health Nursing, 22*(3), 169-178.

Cancer Prevention Research Center. (1991). *Exercise stages of change – Short form.* Retrieved November 15, 2004, from http://www.uri.edu/research/cprc/Measures/Exercise02.htm

Capers, C. F. (1991). Nurses' and lay African Americans' views about behavior. *Western Journal of Nursing Research, 13,* 123-135.

Cardinal, B. J. (1997). Predicting exercise behavior using components of the Transtheoretical Model of Behavior Change. *Journal of Sport Behavior, 20*(3), 272-283.

Carter-Edwards, L., Fisher, J. T., Vaughn, B. J., & Svetkey, L. P. (2002). Church rosters: Is this a viable mechanism for effectively recruiting African-Americans for a community-based survey? *Ethnicity & Health, 7*(1), 41-55.

Cassidy, C. A. (1999). Using the Transtheoretical model to facilitate behavior change in patients with chronic illness. *Journal of the American Academy of Nurse Practitioners, 11*(7), 281-287.

Crawford, J. A., & Tarko, M. A. (2002). Using the Neuman systems model to guide nursing practice in Canada. In B. Neuman & J. Fawcett (Eds.), *The Neuman Systems Model* (pp. 90-110) (4th ed.). Upper Saddle River, NJ: Prentice Hall.

Davis, L. (2000). Exercise and dietary behaviors in African American elders: Stages of change in efficacy expectancies. *Association of Black Nursing Faculty Journal, 11*(3), 56-58.

Diez-Roux, A. V., Northridge, M. E., Morabia, A., Bassett, M. T., & Shea, S. (1999). Prevalence and social correlates of cardiovascular disease risk factors in Harlem. *American Journal of Public Health, 89*(3), 302-307.

Donovan, R. J., Jones, S., D'Arcy, C. D., Holman, C. D. J., & Corti, B. (1998). Assessing the reliability of a stage of change scale. *Health Education Research, 13*(2), 285-291.

Drayton-Brooks, S., & White, N. (2004). Health promoting behaviors among African American women with faith-based support. *Association of Black Nursing Faculty Journal, 15*(5), 84-90.

Duffy, M. E., & Jacobsen, B. S. (2001). Organizing and displaying data. In B. H. Munro (Ed.), *Statistical methods for health care research* (4th ed.) (pp. 3-27). Philadelphia: Lippincott, Williams, & Wilkins.

Dunn, K. S. (2007). Predictors of self-reported health among older African-American central city adults. *Holistic Nursing Practice, 21*(5), 237-243.

Felton, G. M., Boyd, M. D., Bartoces, M. G., & Tavakoli, A. S. (2002). Physical activity in young African American women. *Health Care for Women International, 23*, 905-918.

Finkelstein, E. A., Troped, P. J., Will, J. C., & Palombo, R. (2002). Cost-effectiveness of a cardiovascular disease risk reduction program aimed at financially vulnerable women: The Massachusetts WISEWOMAN project. *Journal of Women's Health & Gender-Based Medicine, 11*(6), 519-526.

Fleury, J., Sedikides, C., & Lunsford, V. (2001). Women's experience following a cardiac event: The role of self in healing. *Journal of Cardiovascular Nursing, 15*(3), 71-82.

Fowler, B. A., & Risner, P. B. (1994). A health promotion program evaluation in a minority industry. *Association of Black Nursing Faculty Journal, 5*(3), 72-76.

Frank-Stromborg, M., & Olsen, S. J. (1997). *Instruments for Clinical Health-Care Research* (2nd ed.). Boston: Jones and Bartlett Publishers.

Gillum, R. F., Mussolino, M. E., & Madans, J. H. (1998). Coronary heard disease risk factors and attributable risks in African-American women and men: NHANES I epidemiologic follow-up study. *American Journal of Public Health, 88*(6), 913-917.

Goodwin, I. C. (2007). Rural African American women's perception of exercise. *The Alabama Nurse, 34*(2), 18-19.

Gubler, C., Gaskill, S., Fehrer, S., & Laskin, J. (2007). Increasing physical activity and reducing cardiovascular risk using methods of accumulating physical activity. *Cardiopulmonary Physical Therapy Journal, 18*(1), 3-10.

Hageman, P. A., Walker, S. N., Pullen, C. H., Boeckner, L. S., & Oberdorfer, M. K. (2005). Physical activity and fitness among midlife and older rural women. *Journal of Aging and Physical Activity, 13*, 327-342.

Haggart, M. (1993). A critical analysis of Neuman's systems model in relation to public health nursing. *Journal of Advanced Nursing, 18,* 1917-1922.

Harari, M. J., Waehler, C. A., & Rogers, J. R. (2005). An empirical investigation of a theoretically based measure of perceived wellness. *Journal of Counseling Psychology, 52*(1), 93-103.

Hausenblas, H. A., Dannecker, E. A., Connaughton, D. P., & Lovins, T. R. (1999). Examining the validity of the stages of exercise change algorithm. *American Journal of Health Studies, 15*(2), 94-99.

Hu, F. B., Stampfer, M. J., Solomon, C., Liu, S., Colditz, G. A., Speizer, F. E., Willett, W. C., & Manson, J. E. (2001). Physical activity and risk for cardiovascular events in diabetic women. *Annals of International Medicine, 134*(2), 96-105.

James, A. S., Hudson, M. A., & Campbell, M. K. (2003). Demographic and psychosocial correlates of physical activity among African Americans. *American Journal of Health Behavior, 27*(4), 421-431.

Jennings-Sanders, A. (2003). Using health fairs to examine health promotion behaviors of older African Americans. *Association of Black Nursing Faculty Journal, 14*(1), 13-16.

Johnson, P. (1983). Black hypertension: A transcultural case study using the Betty Neuman model of nursing care. *Issues in Health Care of Women, 4*, 191-210.

Johnson, R. L., & Nies, M. A. (2005). A qualitative perspective of barriers to health-promoting behaviors of African Americans. *Association of Black Nursing Faculty Journal, 16*(2), 39-41.

Jones-Cannon, S., & Davis, B. L. (2005, November/December). Coping among African-American daughters caring for aging parents. *Association of Black Nursing Faculty Journal,* 118-123.

Kaplan, S. A., Calman, N. S., Golub, M., Ruddock, C., & Billings, J. (2006). The role of faith-based institutions in addressing health disparities: A case study of an initiative in the Southwest Bronx. *Journal of Health Care for the Poor and Underserved, 17*(2), 9-19.

Kind, T., Huang, Z. J., Farr, D., & Pomerantz, K. L. (2005). Internet and computer access and use for health information in an underserved community. *Ambulatory Pediatrics, 5*(2), 117-121.

Knight, J. B. (1990). The Betty Neuman Systems Model applied to practice: A client with multiple sclerosis. *Journal of Advanced Nursing, 15*, 447-455.

Kottwitz, D., & Bowling, S. (2003). A pilot study of the Elder Abuse Questionnaire. *Kansas Nurse, 78*(7), 4-6.

Krummel, D. A., Humphries, D., & Tessaro, I. (2002). Focus groups on cardiovascular health in women: Implications for practice. *Journal of Nutrition Education and Behavior, 34*(1), 38-46.

Ma'At, I., Owens, M., & Hughes, M. (2002). REACH 2010 coalitions: Reaching for ways to prevent cardiovascular disease and diabetes. *Journal of Women's Health, 11*(10), 829-839.

Markens, S., Fox, S. A., Taub, B., & Gilbert, M. L. (2002). Role of Black churches in health promotion programs: Lessons from the Los Angeles Mammography Promotion in Churches Program. *American Journal of Public Health, 92*(5), 805-810.

Martin, S.L., Kirkner, G. J., Mayo, K., Matthews, C. E., Durstine, J. L., & Hebert, J. R. (2005). Urban, rural, and regional variations in physical activity. *The Journal of Rural Health, 21*(3), 239-244.

Meade, A. W. (2004). Psychometric problems and issues involved with creating and using ipsative measures for selection. *Journal of Occupational and Organizational Psychology, 77*, 531-552.

Morbidity & Mortality Weekly Report. (2006). July 21; 55(28), 779. *QuickStats*. Retrieved July 27, 2007, from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5528a7.htm

Morgan, D. M. (2005). Effect of incongruence of acute myocardial infarction symptoms on the decision to seek treatment in a rural population. *Journal of Cardiovascular Nursing, 20*(5), 365-371.

Munro, B. H. (2001). *Statistical methods for health care research* (4th ed.). Philadelphia: Lippincott, Williams, & Wilkins.

Neuman, B. (2002). The Neuman Systems Model. In B. Neuman & J. Fawcett (Eds.), *The Neuman Systems Model* (4th ed., pp. 3-33).Upper Saddle River, NJ: Prentice Hall.

Newman, D. M. L. (2005). A community nursing center for the health promotion of senior citizens based on the Neuman Systems Model. *Nursing Education Perspectives, 26*(4), 221-223.

Nicklas, B. J., Dennis, K. E., Berman, D. M., Sorkin, J., Ryan, A. S., & Goldberg, A. P. (2003). Lifestyle intervention of hypocaloric dieting and walking reduces abdominal obesity and improves coronary heart disease risk factors in obese, postmenopausal, African-American and Caucasian women. *Journal of Gerontology: Medical Sciences, 58A*(2), 181-189.

Nies, M. A., Reisenberg, C. E., Chruscial, H. L., & Artibee, K. (2003). Southern women's response to a walking intervention. *Public Health Nursing, 20*(2), 146-152.

Nies, M. A., Vollman, M., & Cook, T. (1999). African American women's experiences with physical activity in their daily lives. *Public Health Nursing, 16*(1), 23-31.

O'Donnell, M. (1989). Definition of health promotion: Part III: Expanding the definition. *American Journal of Health Promotion, 3*(3), p. 5.

O'Donnell, M. P. (2005). Health promotion advocates history and current focus. *American Journal of Health Promotion, 19*(3), p. 1-1.

Official Website of Selma, AL. (2008). Retrieved September 29, 2008, from http://www.selmaalabama.com/index.php?option=com_mtree&task=viewowner&user_id=62&Itemid=118

Patterson, P. D., Moore, C. G., Probst, J. C., & Shinogle, J. A. (2004). Obesity and physical inactivity in rural America. *The Journal of Rural Health, 20*(2), 151-159.

Pender, N. J., Murdaugh, C. L., & Parsons, M. A. (2002). *Health promotion in nursing practice* (4th ed.). Upper Saddle River, NJ: Prentice Hall.

Peterson, S. J., & Bredow, T. S. (2009). *Middle range theories: Application to nursing research* (2nd ed.). Philadelphia: Lippincott Williams & Wilkins.

Picot, S. J. F., Zauszniewski, J. A., Debanne, S. M., & Holston, E. C. (1999). Mood and blood pressure responses in Black female caregivers and noncaregivers. *Nursing Research, 48*, 150-161.

Powell, L. M., Slater, S., Chaloupka, F. J., & Harper, D. (2006). Availability of physical activity-related facilities and neighborhood demographic and socioeconomic characteristics: A national study. *American Journal of Public Health, 96*(9), 1676-1680.

Prochaska, J. O. (2001). Treating entire populations for behavior risks for cancer. *The Cancer Journal, 7*(5), 360-368.

Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviors. *American Psychologist, 47*(9), 1102-1114.

Prochaska, J. O., Norcross, J. C., & DiClemente, C. C. (1994). *Changing for good.* New York: Harper Collins Publishers Inc.

Prochaska, J. O., Redding, C. A., & Evers, K. E. (2002). The Transtheoretical model and stages of change. In K. Glanz, B. K. Rimer, & F. M. Lewis (Eds.), *Health Behavior and Health Education: Theory, Research, and Practice* (3rd ed., pp. 99-120). San Francisco: Jossey-Bass.

Prochaska, J. O., Velicer, W. F., Guadagnoli, E., Rossi, J. S., & DiClemente, C. C. (1991). Patterns of change: Dynamic typology applied to smoking cessation. *Multivariate Behavioral Research, 26*(1), 83-107.

Pullen, C., Walker, S. N., & Fiandt, K. (2001). Determinants of health-promoting lifestyle behaviors in rural older women. *Family & Community Health, 24*(2), 49-72.

Purath, J., & Miller, A. M. (2005). Predictors of improvement in women's physical activity. *Women and Health, 42*(3), 57-75.

Reid, L., Hatch, J., & Parrish, T. (2003). The role of a historically Black university and the Black church in community-based health initiatives: The project DIRECT experience. *Journal of Public Health Management Practice, Supplement*, S70-S73.

Reis, J. P., Bowles, H. R., Ainsworth, B. E., Dubose, K. D., Smith, S., & Laditka, J. N. (2004). Nonoccupational physical activity by degree of urbanization and U.S. geographic region. *Medicine & Science in Sports & Exercise, 36*(2), 2093-2098.

Rose, K. M., Carson, A. P., Catellier, D., Roux, A. V. D., Muntaner, C., Tyroler, H. A., & Wyatt, S. B. (2004). Women's employment status and mortality: The atherosclerosis risk in communities study. *Journal of Women's Health, 13*(10), 1108-1118.

Sanderson, B. K., Cornell, C. E., Bittner, V., Pulley, L. V., Kirk, K., Yang, Y., Littleton, M. A., Brownstein, N., Matson-Koffman, D., & Raczynski, J. M. (2003). Physical activity patterns among women in rural Alabama. *American Journal of Health Behavior, 27*(4), 311-321.

Sinclair, B. P. (2004). Women and the health care system. In E. Q. Youngkin, & M. S. Davis (Eds.), *Women's health: A primary care clinical guide* (3rd ed., pp. 3-37). Upper Saddle River, NJ: Pearson Education, Inc.

Smith, Y. R., Johnson, A. M., Newman, L. A., Greene, A., Johnson, T. R. B., & Rogers, J. L. (2007). Perceptions of clinical research participation among African American women. *Journal of Women's Health, 16*(3), 423-428.

Speck, B. J., & Harrell, J. S. (2003). Maintaining regular physical activity in women: Evidence to date. *Journal of Cardiovascular Nursing, 18*(4), 282-291.

Stimpson, J. P., Ju, H., Raji, M. A., & Eschbach, K. (2007). Neighborhood deprivation and health risk behaviors in NHANES III. *American Journal of Health Behavior, 31*(2), 215-222.

Suminski, R. R., Petosa, R., Utter, A. C., & Zhang, J. J. (2002). Physical activity among ethnically diverse college students. *Journal of American College Health, 51*(2), 75-80.

Tai-Seale, T. (2003). Stages of change specific triggers and barriers to moderate physical activity. *American Journal of Health Behavior, 27*(3), 219-227.

Taylor, H. A., Hughes, G. D., & Garrison, R. J. (2002). Cardiovascular disease among women residing in rural America: Epidemiology, explanations, and challenges. *American Journal of Public Health, 92*(4), 548-551.

Turner, L. W., Sutherland, M., Harris, G. J., & Barber, M. (1995). Cardiovascular health promotion in North Florida African-American churches. *The Journal of Health Behavior, Education, & Promotion, 19*(2), 3-9.

U.S. Census Bureau. *State and County QuickFacts.* (2000). Retrieved January 11, 2008, from http://quickfacts.census.gov/qfd/states/01/01047.html.

U.S. Census Bureau, Summary File 1 (SF 1) and Summary File 3 (SF 3). Dallas County, AL. *Census 2000 Demographic Profile Highlights: General Characteristics.* (2000a). Retrieved July 31, 2008, from http://factfinder.census.gov/servlet/SAFFFacts?_event=Search&geo_id=&_geoContext=&_street=&_county=...

U.S. Census Bureau, Summary File 2 (SF 2) and Summary File 4 (SF 4). Selma, AL. *Census 2000 Demographic Profile Highlights: Selected Population Group: Black or African American alone.* (2000). Retrieved March 8, 2008, from http://factfinder.census.gov/servlet/SAFFIteratedFacts?_event=Search&geo_id=05000US01047&_geoContext...

U.S. Department of Agriculture. (2006). *Rural America at a glance* (Economic Information Bulletin No. 18). Washington, DC: Economic Research Service.

U.S. Department of Health and Human Services. (2000). *Healthy People 2010: Understanding and Improving Health* (2nd ed.). Washington, DC: U.S. Government Printing Office.

von Bertalanffy, L. (1976). *General systems theory: Foundations, development, applications* (Rev. ed.). NY: George Braziller, Inc.

Walcott-McQuigg, J. A., & Prohaska, T. R. (2001). Factors influencing participation of African American elders in exercise behavior. *Public Health Nursing, 18*(3), 194-203.

Wilbur, J., McDevitt, J., Wang, E., Dancy, B., Briller, J., Ingram, D., et al. (2006). Recruitment of African American women to a walking program: Eligibility, ineligibility, and attrition during screening. *Research in Nursing & Health, 29*, 176-189.

Wilcox, S., Bopp, M., Oberrecht, L., Kammermann, S. K., & McElmurray, C. T. (2003). Psychosocial and perceived environmental correlates of physical activity in rural and older African American and White women. *Journals of Gerontology, 58B*(6), 329-337.

Wilcox, S., Castro, C., King, A. C., Housemann, R., & Brownson, R. C. (2000). Determinants of leisure time physical activity in rural compared with urban older and ethnically diverse women in the United States. *Journal of Epidemiology and Community Health, 54,* 667-672.

Wilson, L. C. (2000). Implementation and evaluation of church-based health fairs. *Journal of Community Health Nursing, 17*(1), 39-48.

Yawn, B. P., Wollan, P. C., Jacobsen, S. J., Fryer, G. E., & Roger, V. L. (2004). Identification of women's coronary heart disease and risk factors prior to first myocardial infarction. *Journal of Women's Health, 13*(10), 1087-1100.

Yeager, K., Macera, C., & Merritt, R. (1993). Socioeconomic influences on leisure-time sedentary behavior among women. *Health Values: Achieving High Level Wellness, 17*(6), 50-54.

Young, D. R., Gittelsohn, J., Charleston, J., Felix-Aaron, K., & Appel, L. J. (2001). Motivations for exercise and weight loss among African-American women: Focus group results and their contribution towards program development. *Ethnicity & Health, 6*(3/4), 227-245.

Young, D. R., & Stewart, K. J. (2006). A church-based physical activity intervention for African American women. *Family & Community Health, 29*(2), 103-117.

Appendix A

The Relationship of Perceived Wellness Scores and Stages of Change for Exercise among Rural African American Women

The Relationship of Perceived Wellness Scores and Stages of Change for Exercise among Rural African American Women

The questions on this questionnaire concern your beliefs, behaviors, and lifestyle practices. These questions may shed some light on the benefits and challenges associated with changing exercise behaviors. Your answers will be kept confidential. Please circle the number or letter of the item which best applies to you, or fill in the blank in the appropriate space.

Part 1

Perceived Wellness Survey

The following statements are designed to provide information about your wellness perceptions. Please carefully and thoughtfully consider each statement, then select the one response option with which you most agree.

Adams, Bezner, and Steinhardt (1997)

	Very Strongly Disagree					Very Strongly Agree
1. I am always optimistic about my future.	1	2	3	4	5	6
2. There have been times when I felt inferior to most of the people I knew.	1	2	3	4	5	6
3. Members of my family come to me for support.	1	2	3	4	5	6
4. My physical health has restricted me in the past.	1	2	3	4	5	6
5. I believe there is a real purpose for my life.	1	2	3	4	5	6
6. I will always seek out activities that challenge me to think and reason.	1	2	3	4	5	6
7. I rarely count on good things happening to me.	1	2	3	4	5	6
8. In general, I feel confident about my abilities.	1	2	3	4	5	6
9. Sometimes I wonder if my family will really be there for me when I am in need.	1	2	3	4	5	6
10. My body seems to resist physical illness very well.	1	2	3	4	5	6
11. Life does not hold much future promise for me.	1	2	3	4	5	6

12. I avoid activities which require me to concentrate.	1 2 3 4 5 6
13. I always look on the bright side of things.	1 2 3 4 5 6
14. I sometimes think I am a worthless individual.	1 2 3 4 5 6
15. My friends know they can always confide in me and ask me for advice.	1 2 3 4 5 6
16. My physical health is excellent.	1 2 3 4 5 6
17. Sometimes I don't understand what life is all about.	1 2 3 4 5 6
18. Generally, I feel pleased with the amount of intellectual stimulation I receive in my daily life.	1 2 3 4 5 6
19. In the past, I have expected the best.	1 2 3 4 5 6
20. I am uncertain about my ability to do things well in the future.	1 2 3 4 5 6
21. My family has been available to support me in the past.	1 2 3 4 5 6
22. Compared to people I know, my past physical health has been excellent.	1 2 3 4 5 6
23. I feel a sense of mission about my future.	1 2 3 4 5 6
24. The amount of information that I process in a typical day is just about right for me (i.e., not too much and not too little).	1 2 3 4 5 6
25. In the past, I hardly ever expected things to go my way.	1 2 3 4 5 6
26. I will always be secure with who I am.	1 2 3 4 5 6
27. In the past, I have not always had friends with whom I could share my joys and sorrows.	1 2 3 4 5 6
28. I expect to always be physically healthy.	1 2 3 4 5 6

29. I have felt in the past that my life was meaningless. 1 2 3 4 5 6

30. In the past, I have generally found intellectual challenges to be vital to my overall well-being. 1 2 3 4 5 6

31. Things will not work out the way I want them to in the future. 1 2 3 4 5 6

32. In the past, I have felt sure of myself among strangers. 1 2 3 4 5 6

33. My friends will be there for me when I need help. 1 2 3 4 5 6

34. I expect my physical health to get worse. 1 2 3 4 5 6

35. It seems that my life has always had purpose. 1 2 3 4 5 6

36. My life has often seemed void of positive mental stimulation. 1 2 3 4 5 6

Part 2

Exercise: Stages of Change – Short Form

University of Rhode Island Change Assessment Scale

Cancer Prevention Research Center, 1991. Dr. James O. Prochaska, Director of the CPRC. Regular Exercise is any *planned* physical activity (e.g., brisk walking, aerobics, jogging, bicycling, swimming, rowing, etc.) performed to increase physical fitness. Such activity should be performed *3 to 5 times* per week for *20-60 minutes* per session. Exercise does not have to be painful to be effective but should be done at a level that increases your breathing rate and causes you to break a sweat. Please circle the one item that best applies to you.

37. **Question: Do you exercise regularly according to that definition?**

- Yes, I have been for MORE than 6 months.
- Yes, I have been for LESS than 6 months.

- No, but I intend to in the next 30 days.
- No, but I intend to in the next 6 months.
- No, and I do NOT intend to in the next 6 months.

Part 3

Demographic Information

Please complete the follow questions by either inserting the answer on the line provided or placing a circle around the letter of the answer that best describes your situation.

38. What is your age? _____

39. What is your education level?

    A. No High School

    B. Some High School

    C. High School Graduate

    D. Some College

    E. College Graduate

40. What is your employment status?

    A. Unemployed

    B. Employed part-time (less than 35 hours a week)

    C. Employed full-time (more than 35 hours a week)

    D. Retired

41. What is your marital status?

    A. Single

B. Married

C. Divorced/Separated

D. Widowed

42. What is your occupation? _____

43. What is your household annual income level?

A. Less than $10,000

B. $10,000 to $19,999

C. $20,000 to $29,999

D. $30,000 to $39,999

E. $40,000 to $49,999

F. $50,000 or more

44. What are the ages of dependent children living at home with you? Include children and/or grandchildren 18 year of age or younger. If none, please write none.

_____

45. Please circle all that apply. Have you ever been told by a health care provider that you have any of the following:

A. Heart disease (heart attack, angina, heart failure, etc.)

B. High blood pressure (hypertension)

C. High cholesterol (hyperlipidemia)

D. Other: _____

(please fill in the blank and include any other illnesses or symptoms that may not have a diagnosis)

E. None of the above.

46. What prescribed medications are you currently taking? If none, please write none.

_____

Appendix B

Imani C. Goodwin
Troy University School of Nursing
400 Pell Avenue
Collegeview Building, Room 39
Troy, AL 36082
334-670-3433

June 8, 2007

Selma, AL Church
Selma, AL

Dear Pastor,

My name is Imani Goodwin. I am a PhD nursing student at Georgia State University, in Atlanta, GA. I am also an Assistant Professor at Troy University School of Nursing. Currently, I am in the process of completing my degree requirements and I am interested in studying rural African American women's perception of wellness and exercise. The women in this study should be between 40 and 75 years of age.

Would it be possible for me to speak with the African American women of your congregation to see if they would be interested in volunteering for this study? If so, what would be a good day and time to meet with them? I am willing to come any day of the week and any time. If there is someone else that I need to contact, please let me know.

I am enclosing a copy of the flyer that provides information for the women. Once I receive a specific date and time, I will be able to include it on the flyer. This flyer is just for your information purposes since vital information is omitted. If you have any questions, please feel free to contact me at the above telephone number.
Sincerely,

Imani C. Goodwin, RN, MSN, CRNP, Assistant Professor - Troy University
PhD Student - Georgia State University

Appendix C

VOLUNTEERS NEEDED

A study is being conducted by Imani C. Goodwin, a doctoral student in the Georgia State University Byrdine F. Lewis School of Nursing, (334) 670-3433. Dr. Dee Baldwin, Associate Professor in the Georgia State University Byrdine F. Lewis School of Nursing, (404) 463-0573, will supervise the study. Ms. Goodwin is interested in finding out how wellness relates to exercise among African American women. Your help is needed to complete this study.

IN ORDER TO HELP YOU MUST BE:

AN AFRICAN-AMERICAN FEMALE

BETWEEN 40 AND 75 YEARS OF AGE

ABLE TO STAND AND WALK WITHOUT HELP

ABLE TO READ AND WRITE IN ENGLISH

WILLING TO COMPLETE A SURVEY

AND WILLING TO PARTICIPATE IN THIS STUDY

Your help with this study will provide a better understanding of the connection between wellness and exercise among African American women. Only you can help by providing this information. If you are willing to participate, please contact Imani C. Goodwin at (334) 670-3433.

At the end of the session, each participant will receive information related to physical activity, and other health related material.

Thank you,

Imani C. Goodwin

(334) 670-3433

DATE:	To be announced
TIME:	To be announced
PLACE:	To be announced

Appendix D

Delete Prev Next Reply/All Forward/Inline Open Inbox 316 of 318
Go to
Move Copy Inbox
Date: Mon, 6 Feb 2006 19:02:09 -0500
From: <drtroy@cox.net> **Add To Address Book**
Subject: Re: PWS
To: <candrews@troy.edu>

```
You have my permission to use the PWS.
Best regards
Troy
>
> From: <candrews@troy.edu>
> Date: 2006/02/06 Mon PM 06:15:53 EST
> To: drtroy@cox.net
> Subject: PWS
>
> Hi Dr. Adams,
> Thank you for allowing me to utilize the PWS as a part of my
> research. If you don't mind, would you please respond to
> this email message stating that you grant permission to me
> to use the PWS. This will satisfy my IRB and school
> requirements (showing that I actually have permission for
> use). It was a pleasure talking with you and thank you for
> offering help with the scoring of the surveys. Once I
> receive the data, I will certainly contact you for help with
> data entry into SPSS.
> Again, thank you.
> Sincerely,
> Carolyn Andrews
> Georgia State University
> Byrdine F. Lewis School of Nursing
> PhD Student
```

Please note: In August, 2006, my name was legally changed from Carolyn Andrews to Imani C. Goodwin.

Appendix E

Permission to use Exercise: Stages of Change

Cancer Prevention Research Center

Measures

Here you can find the psychological measures that have been developed at the CPRC. All measures are copyright Cancer Prevention Research Center, 1991. Dr. James O. Prochaska, Director of the CPRC, is pleased to extend his permission for you to use the Transtheoretical Model-based measures available on this website for research purposes only, provided that the appropriate citation is referenced.

Please Note: All assessment inventories are available for research purposes only and are not for clinical use.

- Smoking
- Alcohol
- Cocaine
- Mammography
- Exercise
- Sun Protection
- Coping & Stress
- Weight Control
- Psychotherapy
- HIV & Safer Sex
- Substance Abuse
- URICA
- Other

Smoking

Adult

- Stages of Change
- Processes of Change (Short Form) (Long Form)
- Self-Efficacy / Temptation (Short Form) (Long Form)
- Decisional Balance (Short Form) (Long Form)

Adolescent

- Stages of Change

Alcohol

Adult

- Stages of Change
- Decisional Balance - Alcohol Use
- Decisional Balance - Alcohol & Drug Use
- Temptations
- Self-Efficacy
- Processes of Change
- URICA

Cocaine

Adult

- Decisional Balance
- Self-Efficacy
- Processes of Change
- Dena Rosenbloom Dissertation Abstract
- URICA

Mammography

Adult

- Stages of Change
- Decisional Balance

Exercise

Adult

- Stages of Change (Short Form) (Continuous Measure)
- Processes of Change
- Self-Efficacy
- Decisional Balance

Sun Protection

Adult

- Stage Algorithm

Coping & Stress

Adult

- Coping Scale
- Stress & Coping Scale (RISC Inventory)

Weight Control

Adult

- Stages of Change
- Decisional Balance
- Processes of Change
- URICA

Psychotherapy

Adult

- Bellis Psychotherapy Measures
- URICA

HIV & Safer Sex

Adult

- Decisional Balance
- Self Efficacy
- Stages of Change for Condom Use

Substance Abuse

Adult

- Stage Algorithm
- Decisional Balance - Drugs & Alcohol

Other

- General Health Survey (GHS - 1991) - Stage of Change assessment for 10 problem behaviors
- University of Rhode Island Change Assessment

http://www.uri.edu/research/cprc/measures.htm

Appendix F

Perceived Wellness Survey

The following statements are designed to provide information about your wellness perceptions. Please carefully and thoughtfully consider each statement, then select the one response option with which you most agree.

	Very Strongly Disagree	Very Strongly Agree
1. I am always optimistic about my future.		1 2 3 4 5 6
2. There have been times when I felt inferior to most of the people I knew.		1 2 3 4 5 6
3. Members of my family come to me for support.		1 2 3 4 5 6
4. My physical health has restricted me in the past.		1 2 3 4 5 6
5. I believe there is a real purpose for my life.		1 2 3 4 5 6
6. I will always seek out activities that challenge me to think and reason.		1 2 3 4 5 6
7. I rarely count on good things happening to me.		1 2 3 4 5 6
8. In general, I feel confident about my abilities.		1 2 3 4 5 6
9. Sometimes I wonder if my family will really be there for me when I am in need.		1 2 3 4 5 6
10. My body seems to resist physical illness very well.		1 2 3 4 5 6
11. Life does not hold much future promise for me.		1 2 3 4 5 6
12. I avoid activities which require me to concentrate.		1 2 3 4 5 6
13. I always look on the bright side of things.		1 2 3 4 5 6
14. I sometimes think I am a worthless individual.		1 2 3 4 5 6
15. My friends know they can always confide in me and ask me for advice.		1 2 3 4 5 6
16. My physical health is excellent.		1 2 3 4 5 6
17. Sometimes I don't understand what life is all about.		1 2 3 4 5 6
18. Generally, I feel pleased with the amount of intellectual stimulation I receive in my daily life.		1 2 3 4 5 6
19. In the past, I have expected the best.		1 2 3 4 5 6
20. I am uncertain about my ability to do things well in the future.		1 2 3 4 5 6
21. My family has been available to support me in the past.		1 2 3 4 5 6
22. Compared to people I know, my past physical health has been excellent.		1 2 3 4 5 6
23. I feel a sense of mission about my future.		1 2 3 4 5 6
24. The amount of information that I process in a typical day is just about right for me (i.e., not too much and not too little).		1 2 3 4 5 6
25. In the past, I hardly ever expected things to go my way.		1 2 3 4 5 6
26. I will always be secure with who I am.		1 2 3 4 5 6
27. In the past, I have not always had friends with whom I could share my joys and sorrows.		1 2 3 4 5 6
28. I expect to always be physically healthy.		1 2 3 4 5 6
29. I have felt in the past that my life was meaningless.		1 2 3 4 5 6
30. In the past, I have generally found intellectual challenges to be vital to my overall well-being.		1 2 3 4 5 6
31. Things will not work out the way I want them to in the future.		1 2 3 4 5 6
32. In the past, I have felt sure of myself among strangers.		1 2 3 4 5 6
33. My friends will be there for me when I need help.		1 2 3 4 5 6
34. I expect my physical health to get worse.		1 2 3 4 5 6
35. It seems that my life has always had purpose.		1 2 3 4 5 6
36. My life has often seemed void of positive mental stimulation.		1 2 3 4 5 6

Appendix G

Perceived Wellness Survey Research Scale Information and Instructions

Perceived Wellness Survey
Research Scale Information and Instructions
(http://perceivedwellness.com/pws_scoring.htm)

The following statements are designed to provide information about your wellness perceptions. Please carefully and thoughtfully consider each statement, then select the one response option with which you most agree.

(Instructions to Researcher: Use as poles for the scale "Very Strongly Disagree" and "Very Strongly Agree." The numerical value of each pole is respectively, "1" and "6." Do not use descriptors over numbers 2 through 5.
Items marked with * should be reverse coded.

1. I am always optimistic about my future.
2. There have been times when I felt inferior to most of the people I knew.*
3. Members of my family come to me for support.
4. My physical health has restricted me in the past. *
5. I believe there is a real purpose for my life.
6. I will always seek out activities that challenge me to think and reason.
7. I rarely count on good things happening to me. *
8. In general, I feel confident about my abilities.
9. Sometimes I wonder if my family will really be there for me when I am in need.*
10. My body seems to resist physical illness very well.
11. Life does not hold much future promise for me. *
12. I avoid activities which require me to concentrate. *
13. I always look on the bright side of things.
14. I sometimes think I am a worthless individual. *
15. My friends know they can always confide in me and ask me for advice.
16. My physical health is excellent.
17. Sometimes I don't understand what life is all about. *
18. Generally, I feel pleased with the amount of intellectual stimulation I receive in my daily life.
19. In the past, I have expected the best.
20. I am uncertain about my ability to do things well in the future. *
21. My family has been available to support me in the past.
22. Compared to people I know, my past physical health has been excellent.
23. I feel a sense of mission about my future.
24. The amount of information that I process in a typical day is just about right for me (i.e., not too much and not too little).
25. In the past, I hardly ever expected things to go my way. *
26. I will always be secure with who I am.
27. In the past, I have not always had friends with whom I could share my joys and sorrows. *
28. I expect to always be physically healthy.
29. I have felt in the past that my life was meaningless. *
30. In the past, I have generally found intellectual challenges to be vital to my overall well-being.
31. Things will not work out the way I want them to in the future. *
32. In the past, I have felt sure of myself among strangers.
33. My friends will be there for me when I need help.
34. I expect my physical health to get worse. *
35. It seems that my life has always had purpose.
36. My life has often seemed void of positive mental stimulation. *

PWS Items

The PWS items are numbered 1 through 36, but for ease of scoring they are numbered according to their respective subscale. (See above).

Psychological Items
PSY1 is #1. I am always optimistic about my future.
PSY2 is #7. I rarely count on good things happening to me.*
PSY3 is #13. I always look on the bright side of things.
PSY4 is #19. In the past, I have expected the best.
PSY5 is #25. In the past, I hardly ever expected things to go my way.*
PSY6 is #31. Things will not work out the way I want them to in the future.*

Emotional Items
EMOT1 is #2. There have been times when I felt inferior to most of the people I knew.*
EMOT2 is #8. In general, I feel confident about my abilities.
EMOT3 is #14. I sometimes think I am a worthless individual.*
EMOT4 is #20. I am uncertain about my ability to do things well in the future.*
EMOT5 is #26. I will always be secure with who I am.
EMOT6 is #32. In the past, I have felt sure of myself among strangers.

Social Items
SOC1 is #3. Members of my family come to me for support.
SOC2 is #9. Sometimes I wonder if my family will really be there for me when I am in need.*
SOC3 is #15. My friends know they can always confide in me and ask me for advice.
SOC4 is #21. My family has been available to support me in the past.
SOC5 is #27. In the past, I have not always had friends with whom I could share my joys and sorrows.*
SOC6 is #33. My friends will be there for me when I need of help.

Physical Items
PHYS1 is #4. My physical health has restricted me in the past.*
PHYS2 is #10. My body seems to resist physical illness very well.
PHYS3 is #16. My physical health is excellent.
PHYS4 is #22. Compared to people I know, my past physical health has been excellent.
PHYS5 is #28. I expect to always be physically healthy.
PHYS6 is #34. I expect my physical health to get worse.*

Spiritual Items
SPIR1 is #5. I believe that there is a real purpose for my life.
SPIR2 is #11. Life does not hold much future promise for me.*
SPIR3 is #17. Sometimes I don't understand what life is all about.*
SPIR4 is #23. I feel a sense of mission about my future.
SPIR5 is #29. I have felt in the past that my life was meaningless.*
SPIR6 is #35. It seems that my life has always had purpose.

Intellectual Items
INT1 is #6. I will always seek out activities that challenge me to think and reason.
INT2 is #12. I avoid activities which require me to concentrate. *
INT3 is #18. Generally, I feel pleased with the amount of intellectual stimulation I receive in my daily life.
INT4 is #24. The amount of information that I process in a typical day is just about right for me (i.e., not too much, not too little).
INT5 is #30. In the past, I have generally found intellectual challenges to be vital to my overall

well-being.
INT6 is #36. My life has often seemed void of positive mental stimulation. *

Scoring Instructions
The methods below are based on the congruence to "wellness philosopy." It is important that they be followed. The scoring method is described step by step below. At the end of the instructions you will find the SPSS file used to score the PWS. You can download a sample SPSS file to play with. I have also included a syntax file. The easiest way to score the PWS is to open both the data file and the syntax file, highlight all the text in the syntax file, and then type Control+R (PC) or Command+R (Mac).

1. Score each item from 1, "very strongly disagree" to 6, "very strongly agree." No labels are applied to respond options 2-5. Items with * are reverse scored.
2. Sum all of the subscale means. The result is the Wellness Magnitude.
3. Divide Wellness Magnitude by 6. The result is called "xbar."
4. For each subscale, compute the following: (subscale mean - xbar)2. The result is called subscale deviation.
5. Sum all of the subscale deviations, then divide the total by 5 (n-1). The result is called the variance. Compute the Wellness Balance with the following formula [(square root of the variance) + 1.25]. The 1.25 is added to the denominator to prevent a Wellness Balance of 0 from creating an invalid Wellness Composite score.
6. Compute the Wellness Composite score with the following formula: Wellness Magnitude/Wellness Balance.

The Perceived Wellness Survey SPSS Scoring File
1. Sophisticated statisticians will recognize that there are quicker "more efficient" ways to do the statistics below. I continue to use the formula below because a) it helped my dissertation committee understand what I was doing, b) it has helped many readers comprehend how the philosophy and theory described in the paper can actually be translated into statistics, c) it is simple, and d) it works.
2. In this sample file, I use 6 columns for the ID field and then leave column 7 blank. Naturally, modifications will be needed to the column number if your data does not fit this format.
3. The variable "Wellness" is the primary variable of interest although you may also be interested in the subscales which are PSYWELL, SOCWELL, PHYSWELL, SPIRWELL, INTWELL, and EMOTWELL. However, I suggest that you check the subscale reliability before using the subscale scores.

```
RECODE PSY2 PSY5 PSY6 EMOT1 EMOT3 EMOT4 SOC2 SOC5 PHYS1 PHYS6 SPIR2
SPIR3 SPIR5 INT2 INT6
(1=6) (2=5) (3=4) (4=3) (5=2) (6=1).
COMPUTE PSYWELL = PSY1+PSY2+PSY3+PSY4+PSY5+PSY6.
COMPUTE SOCWELL = SOC1+SOC2+SOC3+SOC4+SOC5+SOC6.
COMPUTE PHYSWELL = PHYS1+PHYS2+PHYS3+PHYS4+PHYS5+PHYS6.
COMPUTE SPIRWELL = SPIR1+SPIR2+SPIR3+SPIR4+SPIR5+SPIR6.
COMPUTE INTWELL = INT1+INT2+INT3+INT4+INT5+INT6.
COMPUTE EMOTWELL = EMOT1+EMOT2+EMOT3+EMOT4+EMOT5+EMOT6.
COMPUTE PSYMEAN = PSYWELL/6.
COMPUTE SOCMEAN = SOCWELL/6.
COMPUTE PHYSMEAN = PHYSWELL/6.
COMPUTE SPIRMEAN = SPIRWELL/6.
COMPUTE INTMEAN = INTWELL/6.
COMPUTE EMOTMEAN = EMOTWELL/6.
COMPUTE MAGNITUD =
PSYMEAN+INTMEAN+SOCMEAN+PHYSMEAN+SPIRMEAN+EMOTMEAN.
COMPUTE XBAR = MAGNITUD/6.
```

```
COMPUTE EMOTDEV = (EMOTMEAN-XBAR)*(EMOTMEAN-XBAR).
COMPUTE PSYDEV = (PSYMEAN-XBAR)*(PSYMEAN-XBAR).
COMPUTE SOCDEV = (SOCMEAN-XBAR)*(SOCMEAN-XBAR).
COMPUTE PHYSDEV = (PHYSMEAN-XBAR)*(PHYSMEAN-XBAR).
COMPUTE SPIRDEV = (SPIRMEAN-XBAR)*(SPIRMEAN-XBAR).
COMPUTE INTDEV = (INTMEAN-XBAR)*(INTMEAN-XBAR).
COMPUTE SUMDEV = PSYDEV+SOCDEV+PHYSDEV+SPIRDEV+INTDEV+EMOTDEV.
COMPUTE VARIANCE = SUMDEV/5.
COMPUTE BALANCE = SQRT(VARIANCE)+1.25.
COMPUTE WELLNESS = MAGNITUD/BALANCE.
```

Appendix H

Exercise: Stages of Change - Short Form

Regular Exercise is any *planned* physical activity (e.g., brisk walking, aerobics, jogging, bicycling, swimming, rowing, etc.) performed to increase physical fitness. Such activity should be performed *3 to 5 times* per week for *20-60 minutes* per session. Exercise does not have to be painful to be effective but should be done at a level that increases your breathing rate and causes you to break a sweat.

Question:

Do you exercise regularly according to that definition?

- Yes, I have been for MORE than 6 months.
- Yes, I have been for LESS than 6 months.
- No, but I intend to in the next 30 days.
- No, but I intend to in the next 6 months.
- No, and I do NOT intend to in the next 6 months.

Scoring

- answered with choice #1: stage = Maintenance
- answered with choice #2: stage = Action
- answered with choice #3: stage = Preparation
- answered with choice #4: stage = Contemplation
- answered with choice #5: stage = Precontemplation

Appendix I

INSTITUTIONAL REVIEW BOARD
Mail: P.O. Box 3999 In Person: Alumni Hall

Atlanta, Georgia 30302-3999 30 Courtland St, Suite 217

Phone: 404/413-3500
Fax: 404/413-3504

September 6, 2007

Principal Investigator: Baldwin, Defloris M

Student PI: Imani C Goodwin

Protocol Department: B.F. Lewis School of Nursing

Protocol Title: The Relationship between Perceived Wellness and Stages of Change for Exercise among Rural African American Women

Submission Type: Protocol H08062

Review Type: Exempt Review

Approval Date: September 6, 2007

The Georgia State University Institutional Review Board (IRB) reviewed and approved your IRB protocol entitled The Relationship between Perceived Wellness and Stages of Change for Exercise among Rural African American Women. The approval date is listed above.

Exempt protocols do not require yearly renewal. However, if any changes occur in the protocol that would change the category of review, you must re-submit the protocol for IRB review. When the protocol is complete, a Study Closure Form must be submitted to the IRB.

Any adverse reactions or problems resulting from this investigation must be reported immediately to the University Institutional Review Board. For more information, please visit our website at www.gsu.edu/irb.

Sincerely,

Ann C. Kruger, IRB Chair

Federal Wide Assurance Number: 00000129

Appendix J

Letters Granting Permission to Use the Church Facilities

Second Missionary Baptist Church
2809 Hardie Avenue
Selma, Alabama 36701

Phone 874-3064

Rev. Darryl D. Moore
Pastor

"The things which are impossible with men are possible with God"

June 11, 2007

Ms. Imani Goodwin
100 Baldwin Drive
Enterprise, Al. 36330

Dear Ms. Goodwin:

As Pastor of this church, we are excited about the opportunity to be a part of your research. The Deacon Board and I, as the Pastor, give our permission for this church to participate. Dr. Geraldine Allen is the Director of Health Care at our church and she will be your contact individual. The dates and times for our church to participate can be arranged at a later date. I have discussed this with Dr. Allen and I believe she can be of great benefit to you with her excellent background of being doctorally prepared and her experience in research endeavors. We look forward to working with you.

Sincerely,

Rev. Darryl Moore, Pastor

Dr. Geraldine Allen, RN, DSN, FNP
Healthcare Director

Imani C. Goodwin
100 Baldwin Drive
Enterprise, AL 36330

9/30/07

Ms. Goodwin,

Please accept this notice as permission to use the church as part of your research. It is understood that the participants will remain anonymous.

Effree Wilson, Pastor
Tabernacle of Praise Church

10/21/07

Ms. Imani C. Goodwin
100 Baldwin Drive
Enterprise, AL 36330

Dear Ms. Goodwin.

Dr. Geraldine Allen talked with me regarding your research on African American Women in Dallas County, Alabama. You are granted permission to speak with the women of this congregation for the purpose of entering them as participants in your research study, if they are willing.

Pastor Gary L. Jones Sr.
Ellwood Community Church
1705 Selma Ave
Selma, Al

February 29, 2008

Imani C. Goodwin was granted permission to talk with the women in our congregation, Mt Ararat, on Sunday, September 23, 2007, and enter them into her study.

Mt Ararat Baptist Church

Appendix K

Consent Form

Georgia State University

Byrdine F. Lewis School of Nursing
Informed Consent

Title: The Relationship between Perceived Wellness and Stages of Change for Exercise among Rural African American Women.

Faculty Advisor: Dr. Dee M. Baldwin, PhD, RN, FAAN
Student Principal Investigator: Imani C. Goodwin, MSN, RN (334) 670-3433

I. Purpose:

You are invited to be in a research study. The reason for the study is to get information about rural African American women's exercise habits and how well they feel. You are invited because you are an African American woman between the ages of 40 and 75 years. A total of 178 people will be asked to join this study. It will take less than 1 hour of your time over one day. You are being asked to volunteer for this research study because you are an African American woman who lives in Dallas County, Alabama.

II. Procedures:

If you decide to be in the study, you will be asked to fill out a five-page paper that asks questions about your wellness and your exercise habits. This paper will be given to you at the church fellowship hall and can be completed in about 45 minutes. Once you finish it, your part in the study is done. You will receive information about physical activity and other health material when you answer the questions.

III. Risks:

In this study, you will not have any more risks than you would in a normal day of life.

IV. Benefits:

Being in this study may not benefit you personally. Overall, we hope to gain information about rural African American women's exercise habits and feelings about wellness.

V. Voluntary Participation and Withdrawal:

Being in this research study is voluntary. You do not have to be in this study. If you decide to be in the study and change your mind, you have the right to drop out at any time. You may skip questions or stop at any time. Whatever you decide, you will not lose any benefits that you already have. There is no benefit to you for being in the study. The reason for the study is to collect information about the rural African American women's exercise habits and feelings about wellness.

VI. Confidentiality:

We will keep your records private as allowed by law. We will use a study number rather than your name on study records. Only Imani C. Goodwin will have the information you provide. It will be stored in a locked file with Imani C. Goodwin being the only one with the key. The answers to the questions will be kept for about seven years after the study is finished or results published, then they will be destroyed. Your name and other facts that might point to you will not appear when we present this study or publish its results. The findings will be put together and reported in group form. You will not be identified personally.

VII. Contact Persons:

Call Dr. Dee Baldwin at 404-413-1198, or Imani C. Goodwin at 334-670-3433 if you have questions about this study. If you have questions or concerns about your rights in this research study, you may contact Susan Vogtner in the Office of Research Integrity at 404-413-3513 or svogtner1@gsu.edu.

VIII. Copy of Consent Form to Subject:

We will give you a copy of this consent form to keep.

If you are willing to volunteer for this research, please sign below.

_____ _____
Participant Date

_____ _____
Principal Investigator or Researcher Obtaining Consent Date

Appendix L

The Physical Activity Participant Booklet is a compilation of eight (8) pages of information obtained from the American Heart Association. The information is directed to the African American community.

American Heart Association
Learn and Live.
SEARCH YOUR HEART.

Physical Activity

For your heart's sake, get moving! That's good advice for everyone, but particularly for African Americans. Here's why:

- About 27 percent of African-American men and nearly 34 percent of African-American women aren't physically active in their leisure-time.
- Physical inactivity is one big reason why heart disease and stroke hit blacks harder than any other group in America.

If you're physically inactive, overweight or both, you increase your risk of high blood pressure, high blood cholesterol, diabetes, heart disease and stroke.

That's a high price for anyone to pay — especially since there is so much you can do to protect yourself. If physical inactivity is a big part of the problem (it is!), the solution is obvious. Get moving. Become physically active. You have the power.

Let's clear up one point early. Being physically active is not about being skinny. It's about adopting a heart-healthy lifestyle — and staying with it.

Getting moving on a regular basis is one of the least-expensive things you can do to reduce your heart disease and stroke risks. All you need is comfortable shoes and clothing and a place to walk or do whatever other regular activity you may choose (more on that later).

Think of it this way. If you had a heart attack, you'd be motivated to exercise to get your life back, wouldn't you? Well, if that's true, why wait? By getting started now, you can reduce your odds of suffering the pain and expense of a heart attack and putting your loved ones through a lot of grief. So get moving and start to enjoy the benefits of physical activity right now!

Benefits of Physical Activity

Regular physical activity is a key part of heart-healthy living. Combined with healthy eating, at least 30 minutes of physical activity on most or all day of the week can give you many benefits. And if you're trying to maintain or lose weight, you should aim for 60 minutes of physical activity most days of the week Make sure the children in your life are getting 60 minutes every day, too.

Cardiovascular Benefits

- Reduces your risk of heart disease by strengthening your heart and blood vessels. Physical activity conditions your heart so that it pumps stronger and less often. It also conditions your blood vessels so they stay flexible.
- Keeps your weight under control. Maintaining a healthy body weight avoids putting extra strain on your heart and reduces your risk of high blood pressure.
- Improves your blood sugar levels and lowers your risk for developing type 2 diabetes.

Get 30 minutes or more of moderate physical activity on most or all days.

©2006, American Heart Association.

Physical Activity

- Improves your blood cholesterol levels by increasing HDL (good) cholesterol. HDL helps keep LDL cholesterol (the bad kind) from building up in artery walls by carrying it to your liver where it is passed out of your body.
- Prevents and manages high blood pressure. This reduces strain on your heart and blood vessels and helps prevent heart attack and stroke.

Other Benefits

Physical activity doesn't just benefit your cardiovascular system. Here are some other benefits:

- Prevents bone loss
- Boosts your energy level
- Helps manage stress and release tension
- Reduces anxiety and depression and increases enthusiasm and optimism
- Improves your ability to fall asleep quickly and sleep well
- Improves your self-image
- Decreases your risk for breast and colon cancer
- Increases your muscle strength, giving you greater capacity for other physical activities

There's more! If you make physical activity part of your daily life, you can include your family and friends and make it a community-building experience. You can establish good heart-healthy habits in your children and do a lot to head off the conditions that lead to heart disease and stroke later in life.

Physical activity also can help delay or prevent chronic illnesses and diseases that come with aging and can help older people maintain physical agility and quality of life. That's a pretty good payoff!

Fit in Fitness

"I don't have time."

This is the No. 1 excuse we give for not being physically active. If you're like most people, you have a busy life, one that makes it a challenge to find time to fit in fitness. No time? Well, time is all we do have — for ourselves and our loved ones.

Getting moving isn't hard. All you need is to get 30 minutes or more of moderate physical activity on most days or — best of all — every day of the week. You might walk, or ride a bicycle, rake leaves, play with the kids — just move! And you don't have to do all 30 minutes at once. You can add up 10- or 15-minute segments throughout the day.

"I don't have enough money."

Who said you need a lot of money? You don't need a gym membership, expensive equipment or fancy clothes. All you really need is loose, comfortable clothes and a good pair of shoes. That's a heck of a lot cheaper than hospital bills from heart attack or stroke.

What you need most, you can't buy. That's because the most important thing is the commitment to get fit and stay fit to improve your health and set a good example for your kids.

Boosts your energy level!

©2006, American Heart Association.

Physical Activity

On Your Mark...

Be careful and be safe. See your doctor or other healthcare provider if any of these apply to you:

- You have a heart condition or you've had a stroke, and your doctor recommended only medically supervised physical activity.
- During or right after you exercise, you often have pains or pressure in the left or mid-chest area, left neck, shoulder or arm.
- You've developed chest pain or discomfort within the last month.
- You tend to lose consciousness or fall due to dizziness.
- You feel extremely breathless after mild exertion.
- Your doctor recommended you take medicine for your blood pressure, a heart condition or a stroke.
- Your doctor said you have bone, joint or muscle problems that could be made worse by the proposed physical activity.
- You have a medical condition or other physical reason not mentioned here that might need special attention in an exercise program (for example, insulin-dependent diabetes).
- You're middle-aged or older, haven't been physically active, and plan a relatively vigorous exercise program.

If none of these apply to you, you can start on a gradual, sensible program of increased activity tailored to your needs. If you start and feel any of the symptoms listed above, contact your doctor right away. You don't have to exhaust yourself to gain benefits from physical activity; even moderate activities bring benefits.

Heart-healthy nutrition is an important teammate with physical activity. Together, they are a powerful duo in the fight against heart disease and stroke. To learn more, see the Nutrition section.

Get Set...

The three major types of exercises are aerobic, flexibility and strength.

- Aerobic activities use the large muscles in your arms and legs and give your heart a continuous workout. They increase breathing and blood circulation and strengthen your heart and lungs. Examples of aerobic activities include brisk walking, jogging, dancing, bicycling, skating and swimming.
- Strength exercises build muscle mass and strength. Lifting weights is an example. Strength training should be done 2–3 times per week. Aim to do 8–12 repetitions of lifting with 10–12 of your muscle groups (e.g., bicep curl, leg extension). You can lift free weights, soup cans or even use rubber resistance bands to do your lifting.
- Flexibility exercises increase your body's range of motion. Examples include yoga and calisthenics.

For total fitness, do a variety of activities to increase your aerobic capacity, muscle strength and flexibility. Choose activities that are rhythmic and repetitive, that challenge your circulatory system and can be done at an intensity that's right for you. Make sure the things you do are fun and fit your needs, and that you can do them year-round.

It's best to also consider:

- Your interests (Do you prefer group activities or those you can do by yourself?)

Encourage your children to be your exercise buddies

©2006, American Heart Association.

American Heart Association
Learn and Live.
SEARCH YOUR HEART.

Physical Activity

- Your skills (Build up gradually so you're not sore or discouraged.)
- Your schedule
- Equipment and facilities (court, gym, track, pool, showers, etc.)
- Seasonal variations (changing activities according to the weather)
- Ability to include family or friends (if that's what you want)

You don't have to be an athlete to lower your risk of heart disease and stroke. Moderate activities increase your heart rate but don't cause you to breathe heavily or sweat much. They can be beneficial if you do them on most or all days for at least 30 minutes (and preferably more). Examples of moderate activities are:

- Pleasure walking
- Gardening and yardwork
- Moderate to heavy housework
- Pleasure dancing and home exercise
- Walking from the far end of the parking lot to work
- Taking the stairs instead of the elevator

Vigorous activities raise your heart rate and cause you to breathe heavily and perspire. They can further improve the fitness of your heart and lungs. If you're going to do vigorous activity, start slowly and don't push yourself to the point of exhaustion or injury. If you can't talk while you're active, you're working too hard. As your heart gets stronger, you'll eventually want to increase the intensity.

Here are some suggested vigorous activities:

- Brisk walking, hiking or jogging
- Stair climbing
- Bicycling, swimming or rowing
- Aerobic dancing or cross-country skiing

You may choose others, of course. Just be sure they work for your heart. Whatever activities you choose, make them something you enjoy. Find an exercise buddy and make it a social event! Working out is a way of life — for a lifetime! Commit yourself to a three-month project to build a healthy habit and see results — then keep going.

Go!

Start your exercise session with a warm-up that lasts three to five minutes. Warming up increases your breathing, blood flow and body temperature. It also reduces your risk of injury during more vigorous activities. Start slowly to protect yourself when you warm up, especially if you do stretching or if you go through the motions of your exercises. Keep it smooth and easy; don't bounce.

Next, do your conditioning. Conditioning increases cardiovascular fitness. It should be done at a moderate — not exhausting — intensity. Don't push yourself to a point of collapse. Extend the conditioning period gradually until you're exercising at least 30 minutes on all or most days of the week.

During the conditioning part of your session, expect to breathe faster and more deeply. Your heart will also beat faster — a signal that you're challenging your system. (That's good!)

Schedule exercise like an appointment during your workday.

©2006, American Heart Association.

Physical Activity

But you shouldn't be out of breath. You should be able to talk as you exercise. And you should recover within a few minutes after exercising. (Read more about this under "In General" below.)

After you exercise, cool down for a few minutes. Don't stand still or lie down. Walk around and stretch any muscles that feel tight or tense.

In General

- Start by setting specific, easy-to-achieve weekly goals — something like walking for 10 minutes a day and doing 10 stomach crunches in front of the TV at night. Increase your activity slowly until you are accumulating at least 30 minutes of physical activity a day.
- Keep an exercise diary. Write your weekly goal at the top of a piece of notebook paper. Write the days of the week beneath it. Each day record when you exercise and for how long.
- Set target heart rates. This lets you measure your initial fitness level and track your progress. Start with your maximum heart rate: it's 220 minus your age. Then find 50 percent and 75 percent of this number. This 50 to 75 percent range is called your target heart rate. Your goal is to measure your pulse periodically as you exercise and stay within this range. To measure your pulse, lightly hold two fingers on the side of your neck beside your Adam's apple or on the inside of your wrist. Count the number of beats in 10 seconds, then multiply by six to get beats per minute.

When starting an exercise program, this number should be at the lowest part of your target zone (50 percent) during the first few weeks. Gradually build up to the higher part of your target zone (75 percent). After six months or more of regular exercise, you may be able to exercise comfortably at up to 85 percent of your maximum heart rate. But guess what? You don't have to exercise that hard to stay in shape!

Some people can't measure their pulse or don't want to take their pulse when exercising. If that describes you, try using a "conversational pace" to monitor your efforts during moderate activities like walking. Here's how it works:

If you can talk and walk at the same time, you aren't working too hard. If you can sing and maintain your level of effort, you're probably not working hard enough. If you get out of breath quickly, you're probably working too hard — especially if you have to stop and catch your breath.

If you participate in more vigorous activities like brisk walking and jogging, the "conversational pace" approach may not work. In that case, try using the target heart rate. It works for many people, and it's a good way for health professionals to follow your progress.

- Find exercise buddies — at work, in your neighborhood, through your church or some other organization. Encourage your children to be your exercise buddies and help them get in the habit of exercising, too.
- If you go a day without exercising, don't beat yourself up! Get back on track the next day and don't look back.

After you exercise, cool down for a few minutes.

©2006, American Heart Association.

American Heart Association
Learn and Live.
SEARCH YOUR HEART.

Physical Activity

Before and at Work

You can make a couple of slight changes in your routine before your workday starts. Here are a couple of practical ideas:

- Get up 10 minutes earlier and take a walk before you shower.
- Arrive at work 10 minutes earlier and park at the far end of the lot. If taking a bus, get off one stop early and walk the rest of the distance. Walk up the stairs instead of taking the elevator.

Keep the momentum when you get to work. Fit fitness in like this:

- Instead of a 15-minute coffee break, take a 10-minute walk break. Slip on a pair of sneakers and walk the halls.
- Only have 30 minutes for lunch? Eat in 20 and walk for the last 10.
- Take a 10-minute afternoon walk.
- Keep a tennis ball and hand weights at your desk. During phone calls, squeeze the tennis ball to strengthen your grip, or stand and do a series of arm-strengthening exercises with the hand weights.
- Schedule exercise like an appointment during your workday. Honor your exercise appointments as you would any others.

At Home

Home is where good heart health begins. You can set the example in several ways. For instance:

- Walk your baby to sleep instead of rocking.
- Walk, cycle and run with your child.
- If your child plays sports, walk around the field during the game or jog in place.
- Keep hand weights and stretchy bands near the TV. Do arm and leg strengthening exercises while you watch TV.
- Enjoy physical activity together as a family. Clean the house, work in the garden, wash windows or rake leaves together. Bowl, inline skate, ice skate, ski, bike, hike or walk the dog. The practical possibilities are endless, so be creative!

Traveling

It's easy to get out of your routine when you travel. Here are some ideas for staying with your plan:

- If you're driving, take an activity break every two to three hours. Take a 10-minute walk in a rest area, jump rope, or do stretching exercises or push-ups on a picnic table.
- Running late? Do some neck rolls or squeeze a tennis ball. At a stoplight, stretch your arms towards the windshield and then across your body.

Safety Tips

If you live in an area with no sidewalks, exercise in a gym or walk in a mall or on a school track. You may also want to invite a friend to walk with you.

Take a 10-minute afternoon walk.

©2006, American Heart Association.

Physical Activity

Heat and Humidity

Heat and humidity can present their own challenges to your health. Heat stroke — which can be fatal — is a real possibility if you don't protect yourself. Here are some ideas for coping with heat and humidity:

- Exercise during the cooler and/or less-humid parts of the day, such as early morning or early evening after the sun has gone down.
- Gradually build up your exercise until you adapt to the heat.
- Wear light, breathable clothing.
- Drink lots of fluids — particularly water — before, during and after exercising.
- Watch for signs of heat stroke:
  - Feeling dizzy, weak, lightheaded and/or excessively tired;
  - Sweating stops or body temperature becomes dangerously high.

Cold and Wet

Protect yourself at all times when exercising in cold and wet weather. For instance:

- Wear layers of clothing to trap air between layers and form protective insulation.
- Wear a hat or head scarf.
- Keep your hands and feet warm to avoid losing body heat.
- Walk in a mall or gym.
- Watch for signs of hypothermia. (This is when body temperature falls below normal because the body can't produce enough energy). Hypothermia signs include lack of coordination, mental confusion, slowed reactions, shivering and sleepiness.

Losing Weight?

If you need to lose weight, you have to burn up more calories than you take in. You'll need to increase your physical activity. Aim for exercising 60 minutes or more every day. But be sensible. Discuss your plan with your doctor and follow his or her advice. A careful plan can head off potential problems.

Eating fewer calories is also important, but don't rely on a fad diet to get you to your goal. Weight that comes off fast often goes back on quickly, too. You need to change your lifestyle. This is the way to lose the weight and keep it off for the rest of your life.

Now, about losing those calories. If you eat 2,000 calories a day to maintain your weight, you'll need to eat less and use up more. Each day eat 250 fewer calories and increase your physical activity to burn up 250 calories more than you normally would. That's 500 fewer calories. At the end of a week, you'd have lost 3,500 calories — or one pound. That might not sound like a lot, but at the end of five months, you'd have lost 20 lbs. Along the way, you'd establish healthy habits that you could maintain. A "crash" diet isn't built on healthy habits.

Eating fewer calories is also important.

©2006, American Heart Association.

Physical Activity

The "rules" for physical activity don't change whether you're trying to improve your fitness, lose weight — or both. Remember:

- Find activities that you like and do them for 30 minutes or more on most or all days of the week.
- Don't overdo it and risk injury; you're in your plan for the long haul.
- Invite friends or family to join you, if that will help motivate you to follow through.

Keep It Up!

Once you're in the groove, don't stop! An active lifestyle is not a trend for a few days, weeks or months. It's a way to go at a sensible pace, steadily improve the quality of your life and maybe add some extra years of living. You can do it. You have the power and you're in charge.

So let's get moving!

Improve the quality of your life!

©2006, American Heart Association.

Appendix M

Medications Reported – listed as recorded on the questionnaires

Pravachol – reported hyperlipidemia

BP pill – reported HTN and hyperlipidemia

BP pills – reported HTN

No meds reported – reported HTN and hyperlipidemia

Dialysis, Diabetic & BP meds – reported heart disease, HTN, and hyperlipidemia

Toprol (no heart dz; heart murmur)

No meds reported HTN

Lisinopril, Plendil, Diovan - reported hyperlipidemia and diabetes

No meds reported – reported heart disease, HTN, and hyperlipidemia

2 BP meds – reported HTN

Lasix, Inderal – heart disease and HTN

No meds reported – reported HTN

BP, Asthma, & other meds – reported HTN and hyperlipidemia, and COPD

Zyrtec, Aleve, Ibuprofen 800 – reported none of the above (no hx of CVD or other diseases)

Benicar HCT – reported HTN

HCTZ – reported HTN

Pressure pill – reported heart disease, HTN, and hyperlipidemia

Antihypertensive – reported hypertension

Zyrtec – reported no hx of CVD

Methotrexate, Plaquenil, Humira, Prednisone, Feldene, Synthroid, Fosamax, Singulair, Leucovorin, Lasix, Aciphex – reported RA and OA

No meds reported – reported HTN and asthma

Diovan – reported HTN

Hypertension (meds) – reported HTN

Blood thinner, Sugar – only reported HTN and hyperlipidemia (did not report diabetes)

ASA, cholesterol med, pressure pill – reported HTN and hyperlipidemia

Pressure med – reported HTN

(Norus??) – reported back pain

All Kind – reported HTN and hyperlipidemia and nerves

Can't remember pressure pill – reported HTN

None – reported hyperlipidemia

None, I took myself off other than Phenobarb & Dilantin – reported HTN and cancer (unspecified)

Benazepril – reported HTN

Several, Synthroid, Enbrel, Lozol – reported HTN and RA

Clonidine, PhosLo, ASA, (Diatex??), Coreg, Cozaar – reported HTN and diabetes

No meds reported – reported heart disease, HTN, hyperlipidemia, and diabetes

Metformin, Altos – only reported diabetes

(Antihotics??) – reported headaches (unspecified)

No meds reported – reported HTN and lung (unspecified)

HCTZ – reported HTN

For all above – reported heart disease, HTN, hyperlipidemia, and diabetes

No meds reported – reported HTN

None – reported HTN

No meds reported – reported HTN

No meds reported – reported hyperlipidemia

Metoprolol – reported HTN

Blood pressure – reported HTN

Synthroid, Metformin, HCTZ/Lisinopril, Bumex, Trazodone, KCL – reported DM; Heart murmur, Carpal tunnel, Depression

Medical for HBP and sugar – reported HTN and hyperlipidemia; did not report diabetes

Toprol – reported heart disease

Coreg reported heart disease and HTN

High Blood pressure – reported HTN

Soma, Lortab, Coreg – reported HTN

None – reported HTN and hyperlipidemia

For all above – reported HTN, hyperlipidemia, and diabetes

None – reported hyperlipidemia

HCTZ – reported heart disease

No med reported – reported HTN

Lopressor – reported HTN

Pressure pill – reported HTN

Norvasc – reported HTN

No meds reported – reported HTN and hyperlipidemia

HCTZ & Inderal – reported HTN

No meds reported – reported heart disease and HTN

Atarax, Sulfasalazine, Ferrous Sulfate, Norvasc, Methotrexate, Ibuprofen, Folic Acid, Tylenol Arthritis – reported HTN

None – reported fibroids (unspecified)

Zocor, Naproxen – reported hyperlipidemia

Diovan, Metformin – reported heart disease, HTN, and hyperlipidemia; did not report diabetes

Iron medication – no info related to CVD

1 pill – reported HTN

BP – reported HTN and hyperlipidemia

No med reported – reported HTN and hyperlipidemia

Maxide – reported HTN

Clonidine & 1 more don't remember name of – reported HTN, chronic bronchitis, asthma, and sinus

High Bd. Pressure meds – reported HTN

High blood pressure (hypertension) – reported HTN

No meds reported – reported HTN

Pressure pills, Cholesterol – reported HTN and hyperlipidemia

High blood pressure – reported HTN and hyperlipidemia

No meds reported – reported HTN and hyperlipidemia

High blood pressure, high cholesterol – reported HTN and hyperlipidemia

Actos, Glucophage, Coreg – reported HTN and diabetes

Toprol – reported HTN

No meds reported – reported HTN

No meds reported – reported HTN

Sugar pill – reported heart disease, HTN, hyperlipidemia, and sugar

No meds reported – reported heart disease and HTN

Norvasc, Lipitor – reported heart disease, HTN, and hyperlipidemia

Some – reported HTN and hyperlipidemia

None – reported HTN

Appendix N

Characteristics of Churches One through Four

Characteristics of Church # 1 (N = 55)

Age (*n* = 55)	*M* = 54.42, *SD* = 9.66
Perceived Wellness (*n* = 55)	*M* = 14.84, *SD* = 3.09
Psychological	*M* = 27.63, *SD* = 5.39
Social	*M* = 26.07, *SD* = 4.65
Physical	*M* = 26.42, *SD* = 6.61
Spiritual	*M* = 29.75, *SD* = 4.87
Intellectual	*M* = 27.60, *SD* = 4.25
Emotional	*M* = 27.65, *SD* = 5.07
Stage of Change (*n* = 55)	
Precontemplation	*n* = 4; 7.3%
Contemplation	*n* = 11; 20%
Preparation	*n* = 9; 16.4%
Action	*n* = 11; 20%
Maintenance	*n* = 20; 36.4%
Education (*n* = 53)	
No High School	*n* = 3; 5.5%
Some High School	*n* = 8; 14.5%
High School Graduate	*n* = 14; 25.5%
Some College	*n* = 15; 27.3%
College Graduate	*n* = 13; 23.6%
Missing	*n* = 2; 3.6%

Employment Status (*n* = 54)

Unemployed	*n* = 8; 14.5%
Employed Part-time	*n* = 4; 7.3%
Employed Full-time	*n* = 28; 51.0%
Retired	*n* = 14; 25.5%
Missing	*n* = 1; 1.8%

Marital Status (*n* = 55)

Single	*n* = 13; 23.6%
Married	*n* = 26; 47.3%
Divorced/Separated	*n* = 8; 14.5%
Widowed	*n* = 8; 14.5%

Annual Household Income (*n* = 52)

< $10,000	*n* = 9; 16.4%
$10,000 to $19,999	*n* = 18; 32.7%
$20,000 to $29,999	*n* = 11; 20.0%
$30,000 to $39,999	*n* = 5; 9.0%
$40,000 to $49,999	*n* = 1; 1.8%
$50,000 or more	*n* = 8; 14.5%
Missing	*n* = 3; 5.5%

Children Living at Home (*n* = 45)

None	*n* = 26; 47.3%
One	*n* = 13; 23.6%

Two	*n* = 3; 5.5%
Three	*n* = 2; 3.6%
Four	*n* = 1; 1.8%
Missing	*n* = 10; 18.2
History of Heart Disease (*n* = 54)	
Heart Disease	----------
Hypertension	*n* = 17; 30.9%
Hyperlipidemia	*n* = 3; 5.5%
HT Dz & HTN	*n* = 1; 1.8%
HT Dz & Hyperlipidemia	*n* = 1; 1.8%
HTN & Hyperlipidemia	*n* = 5; 9.0%
HT Dz, HTN, & Hyperlip	*n* = 4; 7.3%
Other	*n* = 4; 7.3%
None of the Above	*n* = 19; 34.5%
Missing	*n* = 1; 1.8%

Characteristics of Church # 2 (N = 8)

Age (*n* = 8)	*M* = 52.25, *SD* = 7.98
Perceived Wellness (*n* = 8)	*M* = 16.05, *SD* = 4.57
Psychological	*M* = 27.38, *SD* = 6.78
Social	*M* = 27.00, *SD* = 5.24
Physical	*M* = 29.00, *SD* = 6.76
Spiritual	*M* = 29.63, *SD* = 5.63
Intellectual	*M* = 27.88, *SD* = 6.53
Emotional	*M* = 30.13, *SD* = 4.61
Stage of Change (*n* = 8)	
Precontemplation	*n* = 1; 12.5%
Contemplation	*n* = 1; 12.5%
Preparation	*n* = 2; 25%
Action	*n* = 1; 12.5%
Maintenance	*n* = 3; 37.5%
Education (*n* = 8)	
No High School	----------
Some High School	*n* = 1; 12.5%
High School Graduate	*n* = 2; 25%
Some College	*n* = 1; 12.5%
College Graduate	*n* = 4; 50%

Employment Status (*n* = 8)	
Unemployed	----------
Employed Part-time	*n* = 1; 12.5%
Employed Full-time	*n* = 6; 75%
Retired	*n* = 1; 12.5%
Marital Status (*n* = 8)	
Single	*n* = 3; 37.5%
Married	*n* = 2; 25%
Divorced/Separated	*n* = 1; 12.5%
Widowed	*n* = 2; 25%
Annual Household Income (*n* = 7)	
< $10,000	----------
$10,000 to $19,999	*n* = 1; 12.5%
$20,000 to $29,999	*n* = 3; 37.5%
$30,000 to $39,999	*n* = 1; 12.5%
$40,000 to $49,999	*n* = 1; 12.5%
$50,000 or more	*n* = 1; 12.5%
Missing	n = 1; 12.5%
Children Living at Home (*n* = 4)	
None	*n* = 2; 25%
One	*n* = 2; 25%
Two	----------
Three	----------

Four	----------
Missing	*n* = 4; 50%
History of Heart Disease (*n* = 8)	
Hypertension	*n* = 4; 50%
Hyperlipidemia	----------
HT Dz & HTN	----------
HT Dz & Hyperlipidemia	----------
HTN & Hyperlipidemia	----------
HT Dz, HTN, & Hyperlip	*n* = 1; 12.5%
Other	----------
None of the Above	*n* = 3; 37.5%

Characteristics of Church # 3 (N = 43)

Age (*n* = 43)	*M* = 52.42, *SD* = 10.00
Perceived Wellness (*n* = 42)	*M* = 15.68, *SD* = 3.58
Psychological (*n* = 43)	*M* = 29.33, *SD* = 6.07
Social (*n* = 42)	*M* = 26.07, *SD* = 4.73
Physical (*n* = 43)	*M* = 26.16, *SD* = 6.55
Spiritual (*n* = 43)	*M* = 30.63, *SD* = 5.74
Intellectual (*n* = 43)	*M* = 29.19, *SD* = 5.95
Emotional (*n* = 43)	*M* = 29.56, *SD* = 3.58
Stage of Change (*n* = 43)	
Precontemplation	*n* = 6; 14%
Contemplation	*n* = 8; 18.6%
Preparation	*n* = 8; 18.6%
Action	*n* = 8; 18.6%
Maintenance	*n* = 13; 30.2%
Education (*n* = 43)	
No High School	*n* = 1; 2.3%
Some High School	*n* = 8; 18.6%
High School Graduate	*n* = 10; 23.3%
Some College	*n* = 10; 23.3%
College Graduate	*n* = 14; 32.6%

Employment Status (*n* = 43)

Unemployed	*n* = 11; 25.6%
Employed Part-time	*n* = 4; 9.3%
Employed Full-time	*n* = 19; 44.2%
Retired	*n* = 9; 20.9%

Marital Status (*n* = 43)

Single	*n* = 8; 18.6%
Married	*n* = 22; 51.2%
Divorced/Separated	*n* = 8; 18.6%
Widowed	*n* = 5; 11.6%

Annual Household Income (*n* = 41)

< $10,000	*n* = 10; 23.3%
$10,000 to $19,999	*n* = 4; 9.3%
$20,000 to $29,999	*n* = 8; 18.6%
$30,000 to $39,999	*n* = 6; 14.0%
$40,000 to $49,999	*n* = 3; 7.0%
$50,000 or more	*n* = 10; 23.3%
Missing	*n* = 2; 4.7%

Children Living at Home (*n* = 24)

None	*n* = 16; 37.2%
One	*n* = 6; 14.0%
Two	*n* = 1; 2.3%
Three	*n* = 1; 2.3%

Four	----------
Missing	*n* = 19; 44.2%
History of Heart Disease (*n* = 42)	
Heart Disease	*n* = 2; 4.7%
Hypertension	*n* = 8; 18.6%
Hyperlipidemia	*n* = 2; 4.7%
HT Dz & HTN	*n* = 1; 2.3%
HT Dz & Hyperlipidemia	----------
HTN & Hyperlipidemia	*n* = 4; 9.3%
HT Dz, HTN, & Hyperlip	----------
Other	*n* = 1; 2.3%
None of the Above	*n* = 24; 55.8%
Missing	n = 1; 2.3%

Characteristics of Church # 4 (N = 56)

Age (*n* = 51)	*M* = 53.47, *SD* = 10.59
Perceived Wellness (*n* = 56)	*M* = 16.61, *SD* = 3.67
Psychological	*M* = 29.79, *SD* = 5.08
Social	*M* = 28.14, *SD* = 5.10
Physical	*M* = 27.95, *SD* = 5.54
Spiritual	*M* = 30.73, *SD* = 5.04
Intellectual	*M* = 28.88, *SD* = 4.85
Emotional	*M* = 28.64, *SD* = 5.42
Stage of Change (*n* = 54)	
Precontemplation	*n* = 8; 14.3%
Contemplation	*n* = 3; 5.4%
Preparation	*n* = 16; 28.6%
Action	*n* = 13; 23.2%
Maintenance	*n* = 14; 25.0%
Education (*n* = 53)	
No High School	*n* = 3; 5.4%
Some High School	*n* = 6; 10.7%
High School Graduate	*n* = 11; 19.6%
Some College	*n* = 22; 39.3%
College Graduate	*n* = 11; 19.6%
Missing	*n* = 6; 10.7%

Employment Status (*n* = 52)

Unemployed	*n* = 7; 12.5%
Employed Part-time	*n* = 7; 12.5%
Employed Full-time	*n* = 25; 44.6%
Retired	*n* = 13; 23.2%
Missing	*n* = 4; 7.2%

Marital Status (*n* = 51)

Single	*n* = 12; 21.4%
Married	*n* = 21; 37.5%
Divorced/Separated	*n* = 12; 21.4%
Widowed	*n* = 6; 10.7%
Missing	*n* = 5; 8.9%

Annual Household Income (*n* = 42)

< $10,000	*n* = 8; 14.3%
$10,000 to $19,999	*n* = 12; 21.4%
$20,000 to $29,999	*n* = 5; 8.9%
$30,000 to $39,999	*n* = 6; 10.7%
$40,000 to $49,999	*n* = 7; 12.5%
$50,000 or more	*n* = 4; 7.1%
Missing	*n* = 14; 25%

Children Living at Home (*n* = 27)

None	*n* = 10; 17.9%

One	*n* = 11; 19.6%
Two	*n* = 5; 8.9%
Three	*n* = 1; 1.8%
Four	----------
Missing	*n* = 29; 51.8%

History of Heart Disease (*n* = 52)

Heart Disease	----------
Hypertension	*n* = 13; 23.2%
Hyperlipidemia	*n* = 1; 1.8%
HT Dz & HTN	*n* = 1; 1.8%
HT Dz & Hyperlipidemia	*n* = 1; 1.8%
HTN & Hyperlipidemia	*n* = 8; 14.3%
HT Dz, HTN, & Hyperlip	*n* = 3; 5.4%
Other	*n* = 1; 1.8%
None of the Above	*n* = 24; 42.9%
Missing	*n* = 4; 7.1%