Physical Fitness Perceptions And Exercise Participation Of Older Adults

Kristi J. Spruell
Mississippi University for Women

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PHYSICAL FITNESS PERCEPTIONS AND EXERCISE PARTICIPATION
OF OLDER ADULTS

by
KRISTI J. SPRUELL

A Thesis
Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Science in Nursing
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Physical Fitness Perceptions and Exercise Participation of Older Adults

by

Kristi J. Spruell

Lynn Chilton
Associate Professor of Nursing
Director of Thesis

Theodora E. Rush
Assistant Professor of Nursing
Member of Committee

Sharon O. Phillips
Instructor in Nursing
Member of Committee

Barbara Mess
Director of the Graduate School
Abstract

Physical fitness and exercise are familiar concepts related to health promotion that improve quality of life and health status and increase longevity. This denotes the importance of exercise and physical fitness throughout the lifespan, especially for older adults. To promote exercise in the elderly, an understanding of their perceptions of physical fitness and exercise is needed. The purpose of this descriptive exploratory study was twofold: to determine if older adults are exercising and to examine their perceptions of physical fitness. Nola J. Pender’s Health Promotion Model provided the theoretical framework for this study. The following research questions guided the study:

(1) Are older adults participating in adequate exercise?;
(2) Do older adults perceive themselves as physically fit?;
(3) Do older adults perceive motivators to exercise?; and
(4) Do older adults perceive barriers to exercise? A convenience sample of 40 adults, ages fifty and above, was obtained from a primary care clinic in a suburban area in Louisiana. Data were collected using the demographic survey and the Physical Fitness and Exercise Activity Levels of Older Adults Scale (PFEALOAS) questionnaire and analyzed
using descriptive statistics. The participants’ scores for each subscale were analyzed to determine a range, mean, median, and standard deviation. Individual scores for each subscale were then analyzed to determine if subjects scored a minimum of 70% or above the total possible score to determine an affirmative answer to the questions for each subscale, except for the barriers subscale which was inversely scored. Therefore, a minimum score of 30% or less was required to answer that subscale affirmatively. Seventy percent of the sample was required to achieve the minimum score in order to answer each question affirmatively. Based on the scoring, it was determined that this sample of older adults did not participate in adequate exercise, did not perceive themselves as physically fit, did not perceive motivators to exercise, nor did they perceive barriers to exercise. Additional findings of the demographic survey revealed 23 participants reported one or more chronic illnesses. The survey also allowed subjects to complete the open-ended question “I would exercise more if”. Three common themes that emerged were time constraints, personal capacities, and lack of personal motivation. The PFEALOAS allowed subjects to list other things that kept them physically active. Three common themes emerged including occupational activities, social
activities, and leisure activities. Results emphasized the need for all health care providers to promote fitness and exercise in older adults by assessing activity levels and understanding the reasons they do or do not exercise. Nursing curricula should emphasize the importance of these health promotion concepts and future research should investigate possible motivators and barriers to exercise. Recommendations include replication of the study using an alternative method of scoring or instrument, and documentation of implementation and evaluation of strategies to increase exercise participation of older adults in nursing practice.
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Chapter I

The Research Problem

Exercise and physical fitness are familiar concepts that contribute to the quality of an individual’s life and healthy aging. Exercise is defined as “physical activity that is planned, structured, repetitive, and purposive in the sense that improvement or maintenance of one or more components of physical fitness is an objective” (Caspersen, Powell, & Christenson, 1985, p.128). Caspersen et al. further defined physical fitness as “the ability to carry out daily tasks with vigor and alertness, without undue fatigue, and ample energy to enjoy leisure-time pursuits and meet unforeseen emergencies” (p. 128). These definitions support the positive effects exercise and physical fitness have on quality of life.

As individuals age, changes occur that can impact quality of life. Aging is associated with limitations to activity, poor control over activity, and fear of injury (Dishman, 1994). Exercise and physical activity can prevent physical problems and improve quality of life while
physical inactivity can have detrimental effects on health, resulting in a vicious cycle (Barry & Eathorne, 1994). Therefore, participation in exercise and physical activity can help older adults meet identified goals that include ability to function independently, perform activities of daily living, meet health care needs, and diminish chronic problems (Melillo, Williamson, Futrell, & Chamberlain, 1997). Physical fitness exists at different levels, which correspond to the capacities and limitations of older individuals. Exercise is transitional throughout the lifespan; therefore, older adults require special health promoting interventions to increase exercise participation and physical fitness (Dishman, 1994).

Perceived health status, perceived benefits of exercise, and perceived barriers to exercise and fitness have been found to be determinates of older adult participation in exercise (Melillo et al., 1997). Therefore, the purpose of this descriptive exploratory study was to determine if older adults participate in exercise and to examine older adults’ perceptions of physical fitness.

Establishment of the Problem

The number of older adults age 65 and older in society is increasing. The United States Census Bureau estimates
the number of older individuals will have increased 40% between the years of 1980 and 2000 (Alford & Futrell, 1992). As a result, older adults are expected to comprise 20% of the American population by the year 2000. There also is an increase in the life expectancy of this population. Today, 65 year-old men are expected to live another 14.8 years, and women another 19 years (Allison & Keller, 1997). By 2040, the life expectancy for men will be 86 years and for women 91 years (Alford & Futrell, 1992). This rapid increase in the number of older individuals has greatly impacted health care in the United States. Older adults bear the greatest need for health care, medications, and clinic visits. Older adults also consume the largest portion of health care expenditure (U.S. Department of Health and Human Services, 1992).

A contributing factor to older adults' increasing need for health care is lack of physical activity (Carethers, 1992). Physical inactivity not only costs the United States a predicted 5.7 million dollars per year (Francis, 1996), but also accounts for 250,000 deaths each year (American College of Sports Medicine, 1994). Sallis et al. (1989) found age and exercise to be related in that men and women greater than 50 years of age exercise less than those less than 50 years. Only 30% of adults over age 65 exercise
regularly (Allison & Keller, 1997). Additionally, 32.7% of adults aged 45 to 64 and 42.6% of adults ages 65 and older report no participation in physical activity (Young, King & Oka, 1995). According to Fontane (1996) 62% of adults over age 55 have sedentary lifestyles.

A relationship has been established between sedentary lifestyle and mortality, revealing sedentary older adults have a 1.53 increased risk of dying sooner than active older adults (Allison & Keller, 1997). Physical inactivity in aging adults is a risk factor associated with age-related medical conditions such as cardiovascular disease, osteoporosis, hypertension, and diabetes (Barry & Eathorne, 1994). Decreased blood volume and immunity, diminished reflexes, and muscle atrophy are physiologic processes that accompany inactivity and aging (Allison & Keller, 1997). Older individuals also experience a 1 to 2% loss of strength and 3 to 4% loss of power each year, resulting in weakness and fatigue (Young & Dinan, 1994). Research suggests some of these age-related changes can be potentiated by disuse and prevented by activity (Melillo et al., 1996). Therefore, inactive older adults may experience increased effects of these changes, further decreasing their health. These detrimental statistics have resulted in more than 25% of adults over age 65 to consider their
health as fair or poor, as do 33% of those over 75 years
(Barry & Eathorne, 1994).

Barriers to exercise contribute to inactivity and poor
health status in the older adult population. One barrier
may be motivational difficulties that can be related to an
antecedent lifetime of inactivity, knowledge deficit, or
lack of interest. Additionally, many older individuals have
underlying medical or psychological conditions that may
limit physical abilities. The existence of preconceived
societal expectations of the need for sedentary lifestyle
with increased age also serves as a barrier to exercise
(Barry & Eathorne, 1994). Adults over the age of 50 who
perceive barriers to exercise are unlikely to participate
in exercise (Sallis, 1989).

Due to the well documented consequences of inactivity
in the aging population, a goal of Healthy People 2000 is
to extend healthy lifespan through health promotion
strategies such as exercise and physical fitness (U.S.
Department of Health and Human Services, 1992).
Improvements gained from regular exercise in older adults
have been documented as similar to those in younger people
(Young & Dinan, 1994). Exercise “increases muscle strength,
flexibility, range of motion, balance, endurance, and
posture, all of which promote self-sufficiency” (Carethers,
Congruently, Howze E.H., Smith, M. and DeGilio (1989) stated that regular exercise fosters cardiovascular health by reducing blood pressure and weight, improves balance, and increases older individuals' sense of control. Exercise prevents disease, disability, immobility, and isolation (Young & Dinan, 1994), thereby improving quality of life. Barry and Eathorne (1994) found that an increase in physical activity is associated with a reduction in all-cause mortality. Therefore, the purpose of this descriptive study was to determine if older adults are exercising, and examine individual perceptions of physical fitness.

**Significance to Nursing**

Interventions are needed in clinical practice to promote health maintenance in elders. The focus of care should not be exclusive to treatment of illness, but should also include improving quality of life. Promotion of fitness and exercise should be a priority in providing care for the older population, beginning with assessment of activity level and attitudes regarding exercise (Melillo et al., 1996). Nurse clinicians need to understand the reasons older adults are or are not active and do or do not exercise. Further exploration of knowledge, health, psychological, and administrative barriers may reveal areas of deficit that need to be addressed to facilitate activity
Research indicates that society perceives that vigorous exercise is necessary to improve fitness, which can be interpreted as a barrier by many individuals. These perceived barriers may therefore contribute to the low percentage of activity reported among older adults (Melillo et al., 1996).

Helping older adults understand the concept of fitness and its components may facilitate healthy behaviors (Melillo et al., 1996). The nurse clinician is in a unique position to work with older adults to teach and encourage health promoting behaviors such as exercise. Explaining that attainment of fitness depends on individual capacities and can be achieved by a variety of activities increases what older clients believe to be possible (Allison & Keller, 1997). When working with older adults, a description of the benefits of fitness, such as reduction of chronic symptoms, illnesses, and medical costs, provides encouragement and concrete reasons for lifestyle modification. The nurse clinician must develop strategies to improve fitness levels of older adults. The clinician’s plan of care should include specific guidelines for adults over age 50 regarding type, duration, and frequency of exercise. Through patient education, nurse clinicians can help older adults overcome barriers, thereby increasing
participation in activity and thus decreasing morbidity, mortality, and cost while increasing quality of life (O’Neill & Reid, 1991).

Alford and Futrell, (1992) suggest nursing curricula are lacking emphasis on the importance of wellness activities such as exercise in the older population. Traditionally, curricula have had a strong focus on illness. At baccalaureate levels, health promotion concepts, such as the importance of exercise and physical activity in older adults, should be introduced. At the master’s level, graduate and nurse practitioner students should be exposed to research related to exercise and older adults. Advanced practice nurses should be taught the importance of including exercise prescription and fitness guidelines as a part of older clients’ plan of care. Students should have the opportunities to practice health promotion for older populations during clinical experiences (Alford & Futrell, 1992).

The current study could contribute needed information to an area of research that has received very little investigation in the past. An abundance of research exists supporting the benefits of exercise, but little has been done with regard to age-specific populations such as older adults. Furthermore, reasons for participation or
nonparticipation in exercise activities are poorly understood, resulting in insufficient health promoting interventions (Melillo et al., 1999).

Theoretical Framework

Nola J. Pender’s Health Promotion Model functions to “explain the occurrence of health-promoting behavior” (Pender, 1987, p.57). According to Pender, health promotion is focused on increasing individuals’ level of well-being and promoting self-actualization of their health potential. Therefore, the individual’s desire to improve their quality of life should motivate one to engage in health promoting behaviors (Pender).

The Health Promotion Model was developed by integrating the Social Learning Theory and the Health Belief Model, and emphasizes the importance of cognitive-perceptual and motivating factors affecting health-promoting behaviors (Pender, 1987). Pender defines cognitive-perceptual factors as “the primary motivational mechanisms for acquisition and maintenance of health-promoting behaviors” (Pender, p. 60). Six cognitive-perceptual factors identified within the Health Promotion Model have a direct impact on elderly participation in health-promoting behaviors examined in the current study.
The first factor from Pender’s Health Promotion Model impacting older adults’ participation is the importance of health. Importance of health suggests individuals with a high value of health are inclined to engage in health-seeking behaviors. The second applicable factor is perceived health status. Perceived health status is the individual’s mental image of their current health experience (Pender, 1987). These two factors provide the groundwork for understanding participation levels in elders.

The third factor impacting the current study is perceived control. Perceived control is described as the individual’s internal desire and ability to control and change their health status. The fourth factor is perceived self-efficacy. This factor refers to the individual’s belief that they can successfully perform a behavior (Pender, 1987). Perceived benefits of health-promoting behaviors, the fifth factor, refers to the individual’s beliefs regarding the effectiveness and importance of a behavior (Pender, 1987). In the current study, perceived benefits could be related to knowledge and previous experience or prior results of exercise participation. Perceived barriers to health-promoting behaviors, the sixth factor, are the individual’s beliefs regarding the actual
or potential difficulty or inconvenience of a behavior (Pender, 1987). The current research will determine if the older population perceives the factors mentioned in the Health Promotion Model, chronic illness, and/or physical limitation as barriers to exercise.

The Health Promotion Model also identifies modifying factors that affect the cognitive-perceptual factors and thereby indirectly influence health-promoting behaviors. Modifying factors include age, race, sex, education, weight, environment, family patterns, previous experiences, and the influence of significant others (Pender, 1987). In the current study, the demographic survey will reflect the presence of modifying factors and their influence on exercise and fitness will be evaluated.

Participation in health-promoting behaviors also depends on cues to action. These cues, which trigger actions, can originate internally or externally. Feelings of well-being serve as internal cues, while communication with others, including the media, are external cues (Pender, 1987). The presence or absence of cues to action will be investigated as sources of motivation for elderly participation in exercise.

The Health Promotion Model serves to explain the determinants of health-promoting behaviors such as
exercise. According to Pender (1987), “the purposes of physical activity for older adults are to enhance the quality of life, aid them in activities of daily living, and assist them in maintaining their independence” (p. 326). Thus, utilization of the Health Promotion Model facilitated investigation of the cognitive-perceptual and modifying factors which influence older adults’ participation in exercise and physical fitness.

Assumptions

For the purpose of this study, the following assumptions were made.

1. Older adults are capable of participating in exercise.
2. Physical fitness contributes to healthy aging.
3. Individuals have the desire and the ability to control and change their health.

Statement of the Problem

Lack of exercise in older adults negatively impacts the process of aging, decreases physical fitness, and increases mortality. Thus, promotion of exercise and physical fitness in older adults is important to improve health status (Fontane, 1996). Health promotion for this population requires an understanding of the individual’s
image of physical fitness and the reasons for activity or inactivity. The purpose of this study is to determine if older adults are exercising and to examine older adults’ perceptions of physical fitness.

Research Questions

This study is guided by the following questions.

1. Are older adults participating in adequate exercise?
2. Do older adults perceive themselves as physically fit?
3. Do older adults perceive motivators to exercise?
4. Do older adults perceive barriers to exercise?

Definition of Terms

1. Older adult
   Operational: male or female age 50 or over as determined by the demographic survey.

2. Adequate exercise
   Theoretical: “performed activity of the muscles, voluntary or otherwise, especially to maintain fitness” (Thomas, 1989, p.633).
   Operational: planned, structured, repetitive, and purposive physical activity to improve or maintain physical fitness (Caspersen et al., 1985) as determined by participant scores of 21.7 (70%) or above for exercise
frequency on the Physical Fitness and Exercise Activity Levels of Older Adults Scale (PFEALOAS).

3. **Perception**

   **Theoretical:** “the ideational association modifying, defining, and usually completing the primary impression or stimulus” (Thomas, 1989, p.1355).

   **Operational:** an idea or mental image as determined by participant responses to the PFEALOAS.

4. **Physically fit**

   **Theoretical:** “a state of physiologic well being that is achieved through a combination of good diet, regular physical exercise, and other practices that promote good health” (O'Toole, 1992, p.1155).

   **Operational:** maintenance of muscle, skeletal, and physiologic integrity in order to perform daily and leisure activities, and prevent and diminish chronic problems as determined by participant scores of 27.9 (70%) or above for physical fitness on the PFEALOAS.

5. **Motivator**

   **Theoretical:** “an internal drive or externally arising stimulus to action or thought” (Thomas, 1989, p.1149).

   **Operational:** factors that enhance older adults’ participation in health-promoting behaviors as determined
by participant scores of 34.1 (70%) or above for perceived motivators on the PFEALOAS.

6. Barrier

Theoretical: “something immaterial that impedes or separates” (Woolf, 1981, p.90).

Operational: factors that hinder older adults’ participation in health-promotion behaviors as determined by participant scores of 24.7 (30%) or less for perceived barriers on the PFEALOAS.

Summary

As previously presented in this chapter, there is an increasing number of older adults as well as a lack of participation in exercise and physical activities in this population. Problems associated with a lack of exercise and physical activity were identified. The benefits achieved through exercise and physical activity participation in older adults also was presented. Pender’s Health Promotion Model was described and related to the current study. The purpose, research questions, assumptions and definition of terms were deliniated. The following chapter will review the literature supporting the current study.
Chapter II
Review of the Literature

A review of available literature related to exercise and physical fitness indicates a lack of attention to older adults as a sparcity of research on this population’s exercise participation and perceptions of physical fitness was found. Therefore, a review of topics lending support to the investigation of older adults’ exercise participation, determinants of participation and perceptions of fitness were included in this review of literature.

One study found in the review of literature that was conducted by Melillo et al. (1996) investigated older adults’ perceived concepts of physical fitness and exercise and how they participated in physical fitness and exercise activity. Concepts were developed by reviewing the literature. The researchers determined exercise to be a portion of the concept of physical activity. Exercise was defined as “physical activity that is planned, structured, repetitive, and purposive in the sense that improvement or maintenance of physical fitness is an objective” (Melillo
et al., 1996, p. 543). Physical fitness was defined as "the ability of the body to respond or adapt to the demands and stress of physical activity" (Melillo et al., p. 543). The researchers focused on a subcategory of physical fitness, health-related fitness, which is fitness that attributes to disease prevention and health promotion. This concept is characterized by the ability to execute daily activities with vitality, and a display of qualities linked with low risk of early onset of hypokinetic diseases, which are correlated to physical inactivity.

Melillo et al. (1996) developed and implemented an eleven-question interview guide. These questions evoked participants' ideas related to physical fitness, factors that encouraged or hindered exercise, and the effects of exercise and activity on wellbeing. The sample of twenty-three Caucasian older adults included nine males and fourteen females whose ages ranged from sixty-three to eighty-two years. Thirteen participants had post-high school education, ten of which were college graduates. Systematic sampling was used to select the participants from over six hundred members of a local social club for older adults. Selecting every fifth name on the membership list provided 159 subjects, who received an invitation to participate by mail. A self-addressed, stamped return
envelope was included. The twenty-three respondents were contacted by telephone and an appointment was scheduled for the interview. Procedures included explanation of purposes of the study, instructions, and the subject’s rights at the appointment. A consent form was signed by each participant before the interview. Instrumentation was a tape-recorded interview lasting forty-five minutes to one hour. Subjects chose to be interviewed at the social club or in their home. The tapes were transcribed and reviewed by the researchers. Analysis of the transcripts was done using content analysis. The researchers analyzed each transcript separately and then in small groups to identify main ideas and understand what was verbalized. The entire group then reviewed transcripts and compared them to evaluate reliability of interpretations. A master list was composed of recurrent themes projected by the participants’ answers.

The researchers determined three major themes. The first theme was functional independence. Physical fitness was viewed as the capacity of self-care and doing what was wanted and needed. The second theme was the concept of the mind and body working together. Participants felt that the functional combination of mind and body is a vital part of physical fitness. The third major theme was related to participants’ comparison of their level of fitness to
others the same age. Possessing physical capabilities that others did not was associated with physical fitness. The researchers also identified nine factors that motivated or hindered physical activity in older adults. Subjects indicated time available for activities determined the amount of participation. The presence of others had a two-way effect on activity. A portion of subjects felt activity was enhanced by socialization, while others who preferred to be alone felt it impeded activity. Subjects were more apt to participate in activities when they were self-motivated, as opposed to being told they should, and when it was an activity they enjoyed. Some subjects preferred a formal regimen, whereas others were resentful, therefore, decreasing participation. Transportation also presented a two-way effect, serving as a barrier to activity facilities, resulting in a motivator to walk for some subjects. Health status contributed to the ability to participate in activities. Subjects implied knowledge and benefits of exercise positively influence participation in activities (Melillo et al., 1996).

In conclusion, the researchers believed their study results contradicted previous research that suggested few older adults participate in regular exercise. Physical fitness was perceived holistically, depended on the unity
of mind and body, and the ability of the subjects to do what is desired. Defining fitness as compared to others the same age denoted a need to develop befitting expectations for exercise and activity in older adults. Melillo et al. (1996) recommended a focus on frequency, duration, mode and rate of progression of exercise prescription rather than high intensity exercise in elders. This shift could positively influence participation by the older adult. As a result of the reported factors that motivate or hinder activity, interventions to raise activity levels for older persons need to be developed.

The study by Melillo et al. (1996) was germane to the current research because the findings provided an understanding of what the older population thinks about exercise and activity, including perceived barriers and motivators to exercise. The instrument used in the current study attempted to identify similar characteristics in older adults although a slightly younger population was investigated.

In another study, Howze, Smith, and DiGilio (1989) investigated factors that influence the adoption of regular exercise and described changes in levels of fitness in sedentary older adults. The dependent variables were
factors that influenced adoption of exercise and changes in fitness levels of participants.

The sample consisted of 102 older adults aged 55 to 84 years, 68% of which were women. The percentage of men and women that were married were 97% and 69% respectively. Eighty-six percent of the men and 69% of the women had obtained at least some college education. Using convenience sampling, subjects were recruited through radio and newsletter advertisements and through senior citizens organizations. Eligible subjects were ambulatory and not currently exercising, had no serious visual or medical impairments that would severely affect participation, secured physician approval to exercise, and had a minimum age of 60. Participants agreed to pre and post screening and assessment, and agreed to complete the 10-week program. Consent forms were obtained. Spouses and friends of participants were included as subjects, despite age or exercise status, in order to include social support as an influencing factor (Howze et al., 1989).

Participants completed questionnaires related to exercise knowledge and attitudes, and confidence in starting and adhering to an exercise program (Howze et al., 1989). Pre-fitness levels were assessed by resting heart rate and blood pressure, height and weight, flexibility,
and aerobic endurance measured by distance walked in twelve minutes. Participants met for two hours, twice a week for ten weeks. The first thirty minutes included warming up, stretching, and cardiovascular activities. After a fifteen-minute break, subjects attended a thirty-minute fitness seminar or a walk outside. The final forty-five minutes consisted of mat exercises, weight lifting, dancing, or sports preferred by subjects. Concluding the program, post-fitness levels were assessed and a questionnaire evaluating exercise knowledge, exercise behavior and positive and negative experiences while exercising was completed (Howze et al., 1989).

The researcher classified participants according to attendance. High attenders attended 15 or more sessions and low attenders attended 8 to 14 sessions. Percentages of each class were obtained in areas of interest for comparison. Paired t-tests were conducted on pre-assessments and post-assessments to evaluate changes in fitness status. Predictors of exercise behavior were contrived from Likert scaled questions applying common factor, varimax rotation and Cronbach’s Alpha analysis. Analysis of the estimated amount of exercise within the program added to the amount of exercise reported outside the program yielded an index of exercise behavior.
Statistical regression of the predictors on the exercise behavior index also was performed (Howze et al., 1989).

Participants' overall perception of their health was high. Thirty-two percent of participants perceived their health as excellent with 60% perceiving health status as good. Seven percent reported fair health and 1% described their health as poor. Sixty-one percent of participants were classified as high attenders, 32% low attenders, and 7% attended eight sessions or less. Those who became high attenders reported better health status in pre-screening than low attenders, thereby denoting a correlation between health status and attendance. Spousal and physician support did not influence participation, but 72% of participants increased social support by making new friends in the program. Factors that negatively influenced low attenders were less confidence in abilities, possibility of self-injury, and concerns about appearance while exercising. Both high and low attenders decreased systolic blood pressure by 14 and 6 points respectively from pre-assessment readings. High attenders were found to have the additional benefit of lower diastolic blood pressure at post-assessment. Both groups also experienced an increase in flexibility. Another change in fitness levels was an average weight loss of 2 pounds in men and 1 pound in women.
who were high attenders. High attenders increased aerobic endurance by walking their original distance plus an additional lap in 12 minutes. Low attenders did not experience changes in these areas. Exercise behavior index scores ranged from 6 to 40 with a mean score of 20.5. Four predictor variables for exercise behavior which included confidence in ability to exercise, knowledge of appropriate frequency and duration of exercise, commitment to exercise, and perception of benefits received were regressed on exercise behavior index. The latter three variables were responsible for 34% of the dissidence in exercise behavior (Howze et al., 1989).

The researchers concluded that the gains observed in both groups suggest how influential exercise can be in older adults. Increased flexibility can positively affect the daily activities and capabilities of older adults. Reduction in blood pressure indicates the possibility of exercise as a treatment for hypertension. According to the researchers, the increase in distance walked in high attenders may imply improved self-confidence more than cardiovascular endurance. The analysis of participants' perception of received benefits supports the claim that exercise behavior is positively affected by the favorable changes exercise produces. The researchers also concluded
that an increase in knowledge of exercise requirements could facilitate exercise adoption. Social support systems may have positive and negative affects on exercise behaviors. These support systems provide encouragement and comradery, but may also account for absences in cases of spouse or family illness (Howze et al., 1989).

Recommendations included that exercise programs be adapted to older adults in order to reduce the number of sedentary elders, improve fitness levels, reduce risks of cardiovascular disease and other health problems, and to help manage chronic illnesses. Exercise also was recommended to improve self-confidence and socialization. These combined benefits can facilitate independence and improve personal well being (Howze et al., 1989).

The Howze et al. study (1989) is similar to the current research in that it investigated older adults’ feelings about themselves and their level of fitness. The significance of factors that influence exercise behaviors in older adults was investigated and determined to have positive and negative affects (Howze et al., 1989). The Howze et al. (1989) study sampled individuals aged 55 and over, while the current research not only studied individuals greater than 55 years, but also included individuals between 50 and 55 years of age.
In further review of literature, O’Neill and Reid (1991) investigated older adults’ perceived barriers to physical activity. According to the researchers, there were four types of barriers: (a) physical/health, (b) psychological, (c) knowledge, and (d) administrative. Physical/health barriers related to injury and illness. Psychological factors included distorted body image and pessimistic attitudes related to the preconceived premise that older adults should be less active. Knowledge barriers related to a poor understanding of the need, value, and amount of exercise by older adults who often do not know their own physical capabilities. Convenience and accessibility to activity, including transportation and facilities, were considered administrative barriers.

The researchers obtained a sample of convenience from 12 apartment residences for independent older adults. The sample consisted of 199 subjects, 47 males and 152 females, aged 55 to 90 years. Eighty percent of the sample was 65 to 84 years old. Forty-eight percent of the subjects were high school educated and 23.5% college educated. Current illnesses were reported in 40% of subjects, while fifty-seven percent had no current illness (O’Neill & Reid, 1991).
O’Neill and Reid (1991) developed the Perceived Barriers Questionnaire specifically for older adults to identify twenty barriers to exercise, question current activity levels, identify factors that increase activity, health status, financial status, and educational level. One older adult from each of the residences was chosen as a liaison to distribute and collect questionnaires. Explanation of the research and consent for participation was obtained through the liaison representative.

For each participant, the researchers constituted the total number of acknowledged barriers as a perceived barrier score. Krushal Wallis, a nonparametric test, was performed to determine if the number of perceived barriers was related to age. Mann-Whitney U testing also was performed to relate the number of perceived barriers to the presence or absence of illness or handicap. Individual barriers were ranked according to calculated percent responses. Chi-Square analysis was performed between the four categories of barriers (O’Neill & Reid, 1991).

The authors determined that 58% of the subjects felt they participated in enough physical activity, while 23.5% reported a lack of activity, and 16% lacked activity but desired more. An illness or handicap preventing activity within the last year was reported in 40% of participants.
The two most popular reasons to increase future physical activity were attainment of better physical condition, which was related to health, and the joining of friends, which was a social factor.

Subjects were classified as having low, medium, or high levels of activity. Level of activity was determined by number of activities, sessions per week, duration per session, and season of participation. More females than males, 67.8% versus 55.3%, were classified in low levels of activity, which was described as three sessions per week of less than fifteen minutes duration. Also, more females rated their own level of activity lower than males. The most commonly reported activities were walking, calisthenics, swimming, dance, and bowling. Eighty-seven percent of subjects indicated one or more barriers prevented physical activity participation. The perceived barrier score was related to age (p<.04), as an increase in age reflected an increase in the number of barriers. A relationship (p<.001) also existed between the number of barriers identified by those who reported an illness or handicap (4.7) versus those without (2.4). The activity level factor approached significance (p<.09) as low level subjects listed an average of 3.8 barriers, medium level subjects 2.8, and high level subjects 2. The most commonly
reported barrier (36.5%) was “I get enough physical activity already in my daily routine.” The second most commonly reported barrier was “I get tired easily” (35%), and the third was “my state of health” (29.5%). Both a lack of discipline and decreased need for physical activity were reported in 22.5%, followed by deserved relaxation (22%), risks to health (19.5%), and poor balance and falls (17.5%) (O’Neill & Reid, 1991).

The researchers also determined barriers reflecting the attitudes and expectations of aging presumed by subjects. Sixteen percent of participants reported “my doctor told me to be careful and not overexert myself”, 15.5% indicated they were “too old”, and 15% felt they were not capable of physical activity. A transportation barrier was reported in 14.5% of subjects and cost in only 6%. A significant difference existed between the four types of barriers (p< . 005). Knowledge barriers were identified by 61.5% of subjects reflecting the belief they received enough exercise, did not need increased exercise, or did not know how to start exercising. Fifty-three percent reported physical barriers, 46.5% psychological barriers, and 28% administrative barriers (O’Neill & Reid, 1991).

The perceived level of activity and reasons for increasing activity was concluded to contradict the actual
low levels of activity. The researchers explained this discrepancy as being related to the large number of subjects perceiving adequate activity in daily routines. This view supports pessimistic attitudes and fallacious knowledge about physical activity and exercise in older adults. The researchers suggested that although subjects responded they felt active enough, daily activities indicated a lack of adequate exercise. Other common barriers such as decreased need for activity and increased number of risks indicate misconceptions of aging. The researchers, therefore, concluded that knowledge is the most common type of barrier in older adults. Physical barriers, the second most common barrier, indicate the negative effects of illness and injury on participation. Psychological factors suggest that older adults have poor self-image and unfavorable attitudes toward physical activity. Surprisingly, the researchers concluded administrative barriers such as transportation and cost were not as influential on activity as suggested in previous literature (O’Neill & Reid, 1991).

Recommendations were made to develop strategies to increase older adults’ knowledge of benefits of activity and stress the importance of activity throughout the lifespan. Clarification of misconceptions of aging would
alleviate perceived restrictions of older adults and increase self-efficacy. The barriers identified explained why older adults do not engage in exercise and activity, and they provide a means of guidance to overcome inactivity in the elder population. Therefore, interventions should stem from medical providers advising appropriate activity in older adults in order to eliminate these barriers (O’Neill & Reid, 1991).

The importance of the O’Neill and Reid (1991) study to the current research is that it highlights the significant factors related to older adult participation in physical activity. The current study investigates barriers as well as motivators, participation in exercise, and perceptions of physical fitness. Subjects in the aforementioned study were ages 55 to 90 years. The current study will include subjects of 50 years and older in order to examine characteristics of those entering older adulthood.

To provide assistance in developing interventions for exercise promotion, Sallis et al. (1989) identified correlates of self-reported vigorous exercise. The dependent variable was vigorous exercise. Twenty-four independent variables based on operant and social learning theories were classified according to likelihood of directly or indirectly affecting exercise. Examples of
variables with a direct effect were self-efficacy, modeling, support from family and friends, and perceived barriers and benefits. Variables expected to have an indirect effect included lifestyle variables, demographics, and past social influences.

A random sample of 4,729 eligible adults in San Diego, California was obtained from a commercial street-listing directory. Surveys were randomly mailed to either the male or female in the household. Frequency of vigorous exercise was determined by the number of times per week subjects’ reported exercising during free time. Vigorous exercise was described as a minimum of twenty minutes without stopping, and hard enough to significantly increase heart rate and breathing (Sallis et al., 1989).

Analysis was conducted on 1,789 usable surveys obtained with the Statistical Package for the Social Sciences package. Multiple regression was applied to the entire sample and repeated for four subgroups based upon age (less than and greater than fifty years) and sex (male and female). Relationships between dependent and independent variables were determined (Sallis et al., 1989).

The total number of men and women greater than fifty years were 437 and 301 respectively, with a mean age of
63.5 for both sexes. Men and women less than fifty years accounted for 584 and 437 subjects respectively, with mean ages of 35.6 and 34 years. Men greater than fifty years reported a mean of 1.8 vigorous exercise sessions per week, but 35% reported vigorous exercise three or more times per week. Women greater than 50 years reported a mean of 1.5 sessions per week, but 32% reported three or more sessions per week. These percentages appeared to be higher than previous estimates (Sallis et al., 1989).

Zero-order correlations between vigorous exercise and the independent variables greater than r=0.20 were significant. Self-efficacy, the most significant variable (0.48), was excluded to determine correlates that precede both self-efficacy and vigorous exercise. The significant variables in descending order of β weights were barriers, diet, age, modeling, friend support, home equipment, benefits, smoking, coordination and education. Barriers and diet were significant in all four subgroups, modeling and age in three groups, smoking in both older and younger men, and friend support in younger men and older women. Item analysis was conducted on the 15 perceived barriers measured because of the importance for all subgroups. The six items with the highest correlation (r>0.15) in descending order were lack of interest, lack of enjoyment,
lack of self-discipline, company (social support), knowledge, and skills (Sallis et al., 1989).

The researchers found both cognitive variables and social influences to be important direct correlates of vigorous exercise. The importance of friend support and modeling suggests improvement in social networks may be effective means to increase exercise participation, especially with older women. The overbearing perception of barriers in all subgroups indicated cognitive processes might influence participation. Interventions to increase awareness and relevance of exercise and to provide diversity must be developed to overcome these perceptions of barriers. Health habits and age were significant indirect correlates. The prevalence of dietary and exercise correlation supported previous research findings. Therefore, Sallis et al. (1989) concluded that programs targeting both behaviors may be synergistic. As expected, exercise varied with age, but associations with exercise were similar throughout the groups. The researchers recommended these findings be considered in the development of exercise promotion interventions to increase participation in regular physical activity in all ages (Sallis et al., 1989).
Although the Sallis et al., (1989) study did not focus directly on older adults, a valuable comparison was made between younger and older adults. The current study focused exclusively on individuals aged 50 and older. Similar variables influenced both ages, while certain correlates existed for older adults. Results from the Sallis et al. study indirectly support the importance of determining factors that influence exercise participation, and give credence to conduction of further studies in this area.

In a similar study, Gill and Overdorf (1994) examined how the importance of exercise incentives varied across age for 272 female exercisers. A convenience sample was recruited from exercise clubs, recreational sport leagues, and sport-related professional meetings. Females between the ages of 18 and 60 years who exercised regularly volunteered to participate. Subjects completed a survey designed by the investigators which assessed the importance of the following eleven exercise incentives: (a) task mastery, (b) weight control, (c) physical fitness, (d) physical health, (e) mental health, (f) stress management, (g) affiliation, (h) appearance, (i) recognition for physical performance, (j) competition, and (k) creative expression. Incentives were ranked on a scale of 1 (not important) to 5 (extremely important).
Participants were classified into four age groups:

(1) under 31 years (n=75), (2) 31-40 years (n=57),
(3) 41-50 years (n=71), and (4) 51-60 years (n=39). One-way ANOVA series were conducted to determine the variance across the age groups. The only significant age variance finding was that the youngest group emphasized the importance of gaining recognition more than those over 31 years (Gill & Overdorf, 1994).

Examination of mean scores revealed the most important exercise incentives for all ages were fitness and physical health. The youngest and oldest age groups ranked fitness as the primary incentive, followed by physical health, while the ranking for the middle groups was reversed. The importance of mental health increased with age, as evidenced by mental health ranking as the third most important incentive of the oldest group. Appearance was important to all subjects, slightly more for the youngest group, and was ranked fourth by the oldest subjects. Stress management was important for all subjects, more commonly in the two middle age groups. Weight control was more important to the three younger groups. Affiliation was considered one of the least important incentives, but emphasis increased with age. Interestingly, task mastery or personal achievement was as important to older subjects as
for the other age groups. Competition and creative expression were least important to all age groups (Gill & Overdorf, 1994).

The researchers concluded that incentives may vary by age, therefore, exercise should be structured to meet the goals of the client. Exploration of goals or incentives is vital to predict and promote exercise adherence. Particular attention was given to incentives of older exercisers to determine motivational relevance for older adults. Gill and Overdorf (1994) recommended emphasizing physical and mental health benefits, social interaction and stress reduction, and promotion of personal achievement to improve exercise participation in older women.

The Gill and Overdorf study (1994) supports the exigency to understand valued reasons of older adults regarding regular exercise. This study as well as the current study investigated older adults 51-60 years of age. Several age-related differences were revealed which provide direction for exercise promotion, which is the ultimate goal of the current research.

In contrast, Young, King and Oka (1995) sought to determine health status and identify demographic and health-related characteristics of sedentary, under-active and regularly active older adults ages 50-65 years. A
substudy to compare group versus home-based exercise programs also was investigated but will not be discussed as relevant for inclusion in this literature review.

The sample was acquired through a random-digit-dial telephone survey in Sunnyvale, California. Of the 2,668 eligible adults between 50 and 65 years, 1,877 agreed to participate. The survey was adapted from the National Health Interview Survey Health Promotion and Disease Prevention Questionnaire (NHIS-HPDP) to assess exercise habits. Subjects were questioned regarding participation in twenty different activities during the previous two weeks. If participation was identified, the subject was questioned regarding the frequency, duration and intensity of each activity engaged (Young, King & Oka, 1995).

Health status was determined by asking subjects if they considered their health to be excellent, good, fair or poor. Subjects were asked to identify previous and/or current medical diagnoses and any physical limitations that may preclude to moderate activity (Young, King & Oka, 1995).

Subjects were classified as sedentary, underactive, or regularly active according to responses. Stepwise logistic regression was utilized to determine the rank order of characteristics for each class. Male subjects were
classified as follows: (a) 7.8% sedentary, 76.6% underactive and 15.5% regularly active; and (b) females were 12.2% sedentary, 72.3% underactive and 15.5% regularly active. Regularly active males and females were significantly younger, more educated, less likely to smoke and had the lowest body mass index. Adverse health status, prevalence of stroke, and physical limitations were reported the least for regularly active men and women. Underactive men were less educated, had higher body mass index, and reported more hypertension than regularly active men. Sedentary men were more likely unmarried, smokers, and had a higher body mass index. Underactive women were more likely smokers and older than regularly active women. Sedentary women reported poorer health, increased rates of hypertension and stroke, and increased physical limitations as compared to underactive women (Young, King & Oka, 1995).

The researchers found sedentary and underactive individuals to have gender specific and varying demographic, behavioral and health characteristics. Sedentary women were differentiated from underactive counterparts by health characteristics. Low back pain and arthritis were the most common physical limitations reported by sedentary women. These conditions may not inhibit all physical activity and ironically these
limitations as well as hypertension could be diminished with regular exercise. Another conflicting finding was that 65% of the women reporting a physical limitation considered their health to be good to excellent. These findings further suggest exercise may not be contraindicated. The researchers proposed that older women with chronic conditions may not be interested in physical activity or are misinformed about capacities by societal expectations, peer influence or inadequate communication from clinicians (Young, King & Oka, 1995).

Sedentary men were differentiated from underactive men by marital status, smoking, and body weight. The researchers concluded that sedentary men had an increased risk for disease based on previous findings. The research supported the likelihood of smoking, being unmarried, and overweight most likely to affect mortality. Although age was not a significant discriminator of activity, the findings do address the inactivity in older adults and needed support interventions for this population (Young, King & Oka, 1995).

The researchers recommended exercise promotion focused towards sedentary adults should include efforts to explore perceived inabilities, education on benefits of a variety
of healthy behaviors, and encourage participation in moderate activities (Young, King & Oka, 1995).

The Young, King and Oka study (1995) was germane to the current research because the focus on older adults ages 50-61 years is of particular interest as these adults are entering the period in life when inactivity and the likelihood of becoming sedentary increases. Both studies examined participation in exercise activities, while the current study additionally investigated motivators and barriers to exercise participation, as well as perceptions of physical fitness. The Young, King and Oka study (1995) determined that factors related to activity and exercise in this age group are necessary to promote health and decrease the risk and severity of chronic diseases.

Rakowski and Mor (1992) researched the importance of physical activity in older adults. The researchers examined self-reported activity, exercise, and mortality among a sample of 5,901 adults ages 70 and over drawn from the 1984-1988 Longitudinal Study of Aging. The dependent variable, vital status, was based on death that occurred during the longitudinal study period.

Four questions were used to assess activity and exercise of subjects. The first two questions focused on the level of activity compared to peers and the perception
of getting enough exercise. Both of these questions were indicative of personal judgement. The other questions concentrated on reports of having a physical exercise routine and the frequency of walking a mile per week, were indicators of actual patterns of behavior (Rakowski & Mor, 1992).

Independent variables associated with mortality were examined including sex-specific body mass index, and number of difficult personal and instrumental activities of daily living (IADLs). Additional variables included health-related conditions such as heart conditions, hypertension, stroke, diabetes, and cancer. General health was rated by subjects as excellent, very good, good, fair or poor. Subjects answered three questions regarding participation in out-of-home activities, which constituted the social network index (Rakowski & Mor, 1992).

The researchers used multiple logistic regression analysis to examine the association of self-reported activity and exercise with mortality. Analysis was conducted for the entire sample (n=5901), women (n=3679), men (n=2222) and for subjects reporting difficulty with IADLs (n=1592). Associations were indicated by adjusted odds ratios (AOR) and 95% confidence intervals (Rakowski & Mor, 1992).
All four activity/exercise questions were significantly associated with mortality for the entire sample. An elevated risk of mortality was found with reports of not getting enough exercise (AOR=1.31), not having a regular routine (AOR=1.26), walking one mile less often than once a week or never (AOR=1.54) and participating in less activity than peers (AOR=1.54) (Rakowski & Mor, 1992).

Mortality in women was more significantly associated with the questions regarding actual patterns of behaviors, while mortality for men was associated with questions regarding personal judgement. Forty-one percent of the sample reported difficulty with two or more IADLs and 62% reported one or more personal ADL problems. For these subjects, not walking one mile once a week significantly correlated with an increased risk of mortality (AOR=2.30). Self-rated health and social networks also were strong associates of mortality (AORs 1.20-1.30) (Rakowski & Mor, 1992).

Rakowski and Mor (1992) suggested that the findings regarding gender differences were due to men viewing themselves as disadvantaged or less fit because men are more likely to die than women. Male reports of being less active than peers may have been due to fewer self care and
preventive care activities often found in men. Another possibility identified was that walking may not have been as effective against mortality in men as in women, as emphasized by the strong association found in women subjects. The researchers suggested walking may augment vigor and health in women more than men. The results for subjects reporting difficulty with IADLs suggested the benefits of exercise could be experienced even for individuals with some limitations. In general, the findings supported previous research documenting the potential benefits of older adults maintaining active lifestyles (Rakowski & Mor, 1992).

The researchers recommended clinicians investigate and pay particular attention to reports of minimal activity and exercise and health status in older adults. These factors were important as predictors of mortality in the Rakowski and Mor (1992) study. The recommended establishment of regular physical activity and exercise goals specific to age and gender might help preserve optimal health in older adults according to the investigators. The researchers suggested walking might enhance vigor and health status among women and have important protective effects against mortality. Further insight into personal beliefs of men
and effective measures to increase activity in men was also recommended (Rakowski & Mor, 1992).

The study conducted by Rakowski and Mor (1992) had implications for the current study because it explained the significance of maintaining physical activity in older adulthood. The importance of self-reported activity and health status was another similarity between the two studies, although the Rakowski and Mor (1992) study excluded adults below the age of seventy.

Due to the lack of inclusion of older adults in health promotion research, Padula (1997) investigated predictors of participation in health promotion activities by elderly couples. Pender’s Health Promotion Model was the theoretical framework used in this correlational study. A convenience sample of 59 couples married a minimum of 35 years was recruited from three senior centers in Rhode Island.

The researcher measured perceived health status, value of health, health locus of control, social support, relationship quality, and spousal influence. The dependent variable of interest was participation in health promotion activities, measured with the Health-Promoting Lifestyle Profile. All couples completed instruments separately (Padula, 1997).
Means, standard deviation, and descriptive statistics were performed on all variables. Multiple regression, used to explore relationships between independent variables and the dependent variable, identified five predictors of participation (Padula, 1997).

Statistics for the sample included 55 White couples and 4 Black couples, ages 54 to 86 with a mean age of 72.5 years. Thirty-six percent had less than high school education and 87% were retired. Health status was rated as good or very good by 73% of subjects. Health was valued most important by 58% of subjects. Seventy-three percent of subjects ranked relationship quality in their marriage as very happy (Padula, 1997).

Of the five significant predictors of participation, relationship quality was found to be the strongest predictor, followed by perceived health status, education level, social support, and internal health locus of control. Although health was valued as most important by more than half of subjects, it was not a predictor of participation but contributed to health behavior according to the researcher. Similarly, relationship quality and social support were predictors, while closely related spousal influence was not found to be significant. Nevertheless, spousal influence also was believed to affect
health behaviors. Perceived health status and education were expected predictors and congruent with previous research (Padula, 1997).

These findings were suggestive of the important influence of individual beliefs and relationship characteristics on health behaviors in elderly couples. The researcher recommended further exploration of relationship variables specific to older adults be conducted. These variables played an important part in the decision to participate in health behaviors. Therefore, Padula (1997) suggested the incorporation of relationship variables to enhance the development and implementation of strategies to improve participation in health behaviors.

Padula (1997) used Pender’s Health Promotion Model as the theoretical framework as did the current researcher. Both studies examined perceived health status as a predictor of participation in health promotion activity and included individuals 54 years and older. The current research also investigated perceived barriers and motivators as well as actual exercise participation in individuals 50 years and over.

Summary

The cited studies documented the prevalence of participation and nonparticipation in physical activity and
exercise in older adults. Comparisons were made between younger and older age groups as well as the benefits and risks associated with physical activity versus inactivity. The literature also explored the self-reported determinants of physical activity and exercise including barriers and motivators. All of the variables studied were of great importance to the current study, thereby supporting further attempts of investigation. The age limits of subjects varied among the studies from ages 50 to 70 and above, with the most emphasis on the 65 and older age group. Due to the lack of literature on older adults beginning at age 50 and above, the current study sought to examine characteristics of those entering older adulthood as well as established older adults. Further understanding of patterns of health promoting behaviors, specifically exercise and perceptions of factors related to these behaviors, was the ultimate goal of this researcher. Furthermore, the current study sought to provide information to enhance the quality of life for older adults.
Chapter III

The Method

Older adults can elect to participate in exercise to improve physical fitness and quality of life, yet many do not. In order to encourage health promoting behaviors in older adults, it is important to investigate self-reported activities and perceived fitness level, and capacities or limitations. Therefore, the purpose of this study was to determine if older adults are exercising, and to examine their perceptions of physical fitness, as well as motivators and barriers for participation in exercise.

Design of the Study

A descriptive exploratory design was utilized in this study. The objective of descriptive research is “the accurate portrayal of the characteristics of individuals, situations, or groups and the frequency with which certain phenomenon occur” (Polit & Hungler, 1995, p.640). Exploratory research “is aimed at exploring the dimensions of the phenomenon, the manner in which it is manifested, and the other factors with which it is related” (Polit &
Hungler, 1995, p. 11). The current research described characteristics of exercise and physical fitness specific to older individuals, and also explored determinants of participation. Therefore, this design was deemed appropriate to investigate this new area of research, which sought to determine if older adults participate in adequate exercise, identify perceived motivators and/or barriers, and examine perceptions of physical fitness.

**Variables**

The variables of interest were participation in exercise and perceptions of physical fitness, which included motivators and barriers to exercise. Measures to control the research situation aimed to maintain constancy of conditions. Variables of interest were older adults’ frequency of exercise participation, perceived physical fitness, perceived motivators, and perceived barriers. The investigator explained the study to all participants by reading the informed consent and provided instructions for completion of the questionnaires. All questionnaires were completed in the same area at the collection site. Ample time was provided and assistance was provided in completing questionnaires as needed.
Population, Setting, and Sample

The target population included older adults over fifty years of age. The setting was a primary care clinic in suburban Baton Rouge, Louisiana where three physicians and a nurse practitioner provided comprehensive care for a large number of older adults with varying degrees of health. A convenience sample of 40 older adults was selected from patients visiting the clinic. Patients over age 50 who agreed to participate were included in the sample.

Procedure

Protection of human rights was provided by obtaining approval of the Mississippi University for Women Committee on the Use of Human Subjects in Experimentation (Appendix A). Permission also was obtained to use the Physical Fitness and Exercise Activity Levels of Older Adults Scale (PFEALOAS) for data collection (Appendix B). Permission was granted from clinic administrators to utilize the clinic as the data collection site to access subjects (Appendix C). After permission was obtained the researcher set up dates for data collection with the clinic administrator. Data collection was scheduled from March 1998 to May 1998. The researcher was present on scheduled data collection days to approach possible subjects, explain the study, obtain
consent, and provide instructions and assistance. Completed questionnaires were collected from subjects before leaving the clinic. Data collection continued until the sample size of 40 was achieved.

Subjects' right to privacy was maintained by separating consent forms from the demographic survey and questionnaire. Subjects' right to self-determination was upheld by presenting subjects with the informed consent, explaining the purpose of the study, and requesting completion of a survey and questionnaire (Appendix D). Subjects were informed that participation or nonparticipation would not affect the care they received in the clinic. Signature of subjects confirmed agreement to participate in the study. Subjects' right to conservation of personal resources was respected by requesting approximately ten to fifteen minutes to complete the survey and questionnaire as explained in the consent. Subjects' right to freedom from arbitrary hurt was protected, as there was no identified mental and/or physical suffering as a result of the study. Subjects' right to freedom from intrinsic risk of injury was protected as there were no identified potential risks of emotional and/or physical injury in participating in the study (Appendix D).
**Instrumentation**

Two instruments were utilized to collect data in this study. The instruments included were a demographic survey (Appendix E) and the Physical Fitness and Exercise Activity Levels of Older Adults Scale (Appendix F).

The demographic survey was designed by the researcher. The demographic survey sought information concerning the subjects' gender, age, marital status, race, and education level. Additionally, two open ended questions were included to identify chronic illnesses present and circumstances in which subjects would exercise more.

The PFEALOAS is a 41 item, 4-point, forced-choice, Likert format instrument. There are four subscales within the instrument: (a) exercise frequency, (b) physical fitness, (c) barriers, and (d) motivators. Responses to exercise frequency, questions 1 to 8, were scored never = 1, once a week = 2, two to three times a week = 3, and daily = 4. Physical fitness (questions 9,10,17,18,19,20,21,28,29) and motivators (questions 15, 22,25,26,27,30,31,32,36,38,41) subscales were scored strongly agree = 4, agree = 3, disagree = 2, and strongly disagree = 1. Reverse scoring was applied to the barriers subscale (questions 11,12,13,14,16,23,24,33,34,35,37,39,40). The total possible
range of scores was 41 to 164. The subscale ranges were as follows: (a) exercise frequency, 7 to 28; (b) physical fitness, 9-36; (c) motivators, 11-44; and (d) barriers, 13-52.

Methods of Data Collection

The study was explained to the adults and willing participants were asked to sign the informed consent (Appendix D). Upon completion of the demographic survey and questionnaire, each set of subject data was given an identification number. Surveys and questionnaires were scanned for blank forms, noncompliance, or misinterpretation to determine usability of data collected. Inadequate forms were discarded.

Precategorized data from the surveys and questionnaires were coded. Coded data was transferred onto fixed format data files for computer analysis. Data cleaning including checks for outliers and consistency was implemented to eliminate errors. Data from the three open-ended questions were sorted to ascertain common themes.

Methods of Data Analysis

In order to analyze the data, scoring methods for the PFEALOAS were predetermined. Subject scores of 70% of the total possible points for each subscale were deemed a positive indicator for that subscale. A minimum score of
21.7 for exercise frequency, indicated positive subject participation in exercise. A minimum score of 27.9 for physical fitness indicated high levels of physical fitness in respondents. Perception of motivators was evidenced by a score of 34.1 or greater. Reverse scoring was used for the barriers subscale. Therefore, a score of 24.7 or lower identified perception of barriers. Additionally, 70% of the total sample was required to obtain the predetermined score for a subscale in order to indicate exercise participation, physical fitness, perception of barriers and/or motivators among older adults.

Data files were given to a statistician for computerized analysis by the Statistical Package for the Social Sciences. Descriptive statistical analysis was used to analyze measures of central tendency including mean, median, and mode for each item on the demographic survey and the PFEALOAS. Subject characteristics from the demographic surveys were totaled and converted to percentages. Responses to open-ended questions were sorted for themes.

Summary

A descriptive exploratory design was used to investigate older adults' participation in exercise and perceptions of physical fitness. A convenience sample of
forty adults over fifty years of age was selected from a primary care clinic. Data was collected using a demographic survey and the PREALOAS. Descriptive statistics were used to analyze the data.
Chapter IV
The Findings

The purpose of this descriptive exploratory study was to determine if older adults participate in exercise and to examine older adults’ perceptions of physical fitness, including motivators for and barriers to exercise participation. Data were collected using a researcher designed demographic survey and the Physical Fitness and Exercise Activity Levels of Older Adults Scale (PFEALOAS). Descriptive statistics were used to analyze the data. In this chapter the sample will be described and the findings from data analysis will be presented.

Description of Sample

The convenience sample (N=40) consisted of older adults from a primary care clinic in suburban Baton Rouge, Louisiana. All subjects were aged 50 years and over. Ages ranged from 50 to 84 years with a mean age of 66.4 years. The most common age group was ages 55 to 59 years. Age distribution can be seen in Table 1.
Table 1

Age Distribution of Sample by Frequency and Percentage

<table>
<thead>
<tr>
<th>Age groups</th>
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<th>%</th>
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<tbody>
<tr>
<td>50-54 years</td>
<td>5</td>
<td>12.5</td>
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<tr>
<td>55-59 years</td>
<td>7</td>
<td>17.5</td>
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<tr>
<td>60-64 years</td>
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<td>15</td>
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<tr>
<td>75-79 years</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>80-84 years</td>
<td>5</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Note. N = 40.

The sample included 31 females (77.5%) and 9 males (22.5). The majority of participants were widowed (50%). The racial composition of the sample consisted of African Americans (n= 28, 70%) and Caucasians (n=12, 30%). The highest level of education attained by the participants ranged from less than high school to a master’s degree. Twenty-three participants (57.5%) reported a chronic illness or illnesses. The distribution of demographics of the sample can be seen in Table 2.
Table 2
Demographics of Gender, Marital Status, Race, Highest Education Level, and Chronic Illness by Frequency and Percentage

<table>
<thead>
<tr>
<th>Variable</th>
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<th>%</th>
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<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>9</td>
<td>22.5</td>
</tr>
<tr>
<td>Females</td>
<td>31</td>
<td>77.5</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>13</td>
<td>32.5</td>
</tr>
<tr>
<td>Not married</td>
<td>7</td>
<td>17.5</td>
</tr>
<tr>
<td>Widowed</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>African-American</td>
<td>28</td>
<td>70</td>
</tr>
<tr>
<td>Highest Educational Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; high school</td>
<td>7</td>
<td>17.5</td>
</tr>
<tr>
<td>9th grade</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>10th grade</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>11th grade</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>12th grade</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>some college</td>
<td>4</td>
<td>2.5</td>
</tr>
<tr>
<td>Junior college</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>Bachelor degree</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>Masters degree</td>
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<td>15</td>
</tr>
<tr>
<td>PhD</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Chronic illness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>23</td>
<td>57.5</td>
</tr>
<tr>
<td>No</td>
<td>17</td>
<td>42.5</td>
</tr>
</tbody>
</table>

Note. N = 40.
Findings Related to the Research Questions

The following research questions guided the study:

1. Are older adults participating in adequate exercise?
2. Do older adults perceive themselves as physically fit?
3. Do older adults perceive motivators to exercise?; and
4. Do older adults perceive barriers to exercise? The Physical Fitness and Exercise Activity Levels of Older Adults Scale (PFEALOAS) was used to obtain information about the subscales exercise frequency, perceived physical fitness, perceived barriers, and perceived motivators.

The entire samples' scores for each subscale were analyzed to determine a range, mean, median, and standard deviation. Individual scores for each subscale were then analyzed to determine if subjects scored a minimum of 70% or above the total possible score. The research questions were answered based upon the total number of subjects that achieved this score. Seventy percent of the sample was required to achieve the minimum score in order to answer each question affirmatively. The results of statistical analysis can be seen in Table 3.
Table 3

Statistical Analysis of PFEALOAS Subscales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Range</th>
<th>M</th>
<th>Mdn</th>
<th>SD</th>
<th>Subjects Scoring &gt; 70%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise Frequency</td>
<td>10-19</td>
<td>13.5</td>
<td>13.5</td>
<td>2.5421</td>
<td>0</td>
</tr>
<tr>
<td>Physical Fitness</td>
<td>17-35</td>
<td>26.5</td>
<td>25.5</td>
<td>4.6199</td>
<td>15</td>
</tr>
<tr>
<td>Perceived Motivators</td>
<td>17-44</td>
<td>32.6</td>
<td>32.5</td>
<td>4.8853</td>
<td>9</td>
</tr>
<tr>
<td>Perceived Barriers</td>
<td>26-46</td>
<td>35.5</td>
<td>35.0</td>
<td>4.7448</td>
<td>0</td>
</tr>
</tbody>
</table>

Note. N = 40.

The first research question was as follows: Are older adults participating in adequate exercise? The first subscale exercise frequency addressed this research question. The total possible range was 7 to 28 with sample scores ranging from 10 to 19. A minimum score of 21.7 (70%) was needed to indicate individual participation in adequate exercise. None of the participants (0%) scored 70% or more of the total possible points. Since no participants attained a score of 70% or more, it was determined that
this sample of older adults did not participate in adequate exercise.

The second subscale of physical fitness correlated to the second research question: Do older adults perceive themselves as physically fit? The total possible range of scores was 9 to 36. The participants’ scores ranged from 17 to 35. A minimum score of 27.9 indicated individuals perceived themselves as physically fit. Fifteen participants (37.5%) achieved this score. However, since less than 70% of the sample achieved the set minimum score of 27.9, it was determined that the older adults in this study did not perceive themselves as physically fit.

The third subscale of motivators was related to the third research question: Do older adults perceive motivators to exercise? The total possible range of scores was 11-44. Scores ranged from 17 to 44 for the motivators subscale. A minimum score of 34.1 indicated older adults perceive motivators. Nine participants (22.5%) achieved the minimum score. Since less that 70% of the participants attained the minimum score, it was ascertained that this sample of older adults did not perceive motivators to exercise.

The last subscale of barriers addressed the research question: Do older adults perceive barriers to exercise?
The total possible range of scores was 13 to 52. The sample’s scores ranged from 26 to 46. A score of 24.7 or lower revealed older adults perceive barriers. None of the participants (0%) indicated perceived barriers. Since none of the participants achieved the minimum score for this subscale, it was determined that this group of older adults did not perceive barriers to exercise.

Additional findings

The demographic survey provided space for subjects to list chronic illnesses if present. Twelve of the 23 subjects with chronic illnesses reported more than 1 chronic illness. The most common illnesses reported were cardiovascular conditions (n=14; 60.9%). Cardiovascular diseases included myocardial infarction, stroke, atrial fibrillation, peripheral vascular disease, and hyperlipidemia. Ten participants (43.5%) also reported hypertension. The least common chronic illnesses included cancer, osteoporosis, lupus, and bronchitis which was reported by one individual for each disease. A complete list of chronic illnesses reported can be seen in table 4.
Table 4

Types of Chronic Illness in Rank Order by Frequency and Percentage<a>

<table>
<thead>
<tr>
<th>Types of Chronic Illness</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular conditions</td>
<td>14</td>
<td>60.9</td>
</tr>
<tr>
<td>Hypertension</td>
<td>10</td>
<td>43.5</td>
</tr>
<tr>
<td>Arthritis</td>
<td>5</td>
<td>21.7</td>
</tr>
<tr>
<td>Diabetes Mellitis</td>
<td>5</td>
<td>21.7</td>
</tr>
<tr>
<td>Cancer</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Lupus</td>
<td>1</td>
<td>4.3</td>
</tr>
<tr>
<td>Bronchitis</td>
<td>1</td>
<td>4.3</td>
</tr>
</tbody>
</table>

Note. N = 23

<a>Twelve individuals reported more than one chronic illness.

The demographic survey also allowed subjects to complete the open-ended question “I would exercise more if...” Fifty percent (n=20) of the subjects responded to this question. Content analysis was utilized to determine the following three common themes: (a) time constraints, (b) personal capacities, and (c) lack of personal motivation.
Time constraints. The first and most commonly identified theme was related to time constraints. Seven participants indicated that they would exercise more if they had more time. Examples of responses were as follows:

If I worked less

...  

If I had time

...  

I’m too busy

...  

Personal capacities. The second most commonly identified theme was related to personal capacities. Six responses reflected this theme. The following are examples of subject responses that reflected personal capacities:

If my body is willing and able

...  

If my hip didn’t hurt

...  

If I had better balance

...  

If my knees were better

...  

Lack of personal motivation. The third theme that emerged was a lack of personal motivation which was
reported by four participants. Examples of lack of motivation are as follows:

   No excuse, I just don’t take the time.
   ...
   If I’m not lazy.
   ...
   If it would help.
   ...

The PFEALOAS also allowed participants to list other things that kept them physically active. Twenty-two participants (55%) listed alternative activities. Content analysis was utilized to determine the following three common themes: (a) occupational activities, (b) social activities, and (c) leisure activities.

   **Occupational activities.** The first and most common theme that emerged from participant responses was related to occupation. Seven participants (31.8%) listed alternative activities reflective of this theme such as:

   I work at a hospital on a very active unit.
   ...
   I have a small paper route and I get in and out of the car to deliver.
   ...
   I have a lawn service.
I do maintenance work.

... Social activities. The second theme identified was related to social activities. Six participants indicated they participate in social activities such as keeping grandchildren and visiting friends.

Leisure activities. The third theme that emerged was associated with leisure activities. Six participants indicated they participate in activities such as traveling, fishing, golf, crafts, and shopping.

Summary

The results of this study revealed that older adults did not participate in adequate exercise nor did they perceive themselves as physically fit. The results also indicated older adults did not perceive motivators or barriers to exercise. Subject responses indicated older adults had several different chronic illnesses. Participants expressed reasons for not exercising more, which were sorted into themes of personal capacities, time constraints, and lack of personal motivation. Additionally, older adults indicated participation in alternative activities consisting of occupational, social, and leisure activities.
The purpose of this study was to determine if older adults were exercising and to examine older adults’ perceptions of physical fitness as well as perceptions of motivators and/or barriers to exercise. Pender’s Health Promotion Model was used as the framework for this study. The following research questions guided the study: (1) Are older adults participating in adequate exercise?; (2) Do older adults perceive themselves as physically fit?; (3) Do older adults perceive motivators to exercise?; and (4) Do older adults perceive barriers to exercise? This chapter will include a discussion of the findings, conclusions, implications for nursing, as well as recommendations for future research.

**Summary of Findings**

The sample consisted of 40 older adults ages 50 to 84 years from a primary care clinic who completed the demographic survey and the Physical Fitness and Exercise Activity Levels of Older Adults Scale (PFEALOAS). The most
common age group was ages 55 to 59 years (n=7), with participants representing all other age groups. The average age of the sample was 66.4 years.

The sample was 77.5% female and 22.5% male. Half of the sample was widowed while 32.5% were married and 17.5% responded not married when queried about marital status. The majority (70%) of the sample were African-American.

The most commonly identified highest level of education for the sample was completion of high school. The number of subjects over age 65 years who had less than high school education (n=9) was considerably larger than those exceeding high school education (n=4). The number of subjects under age 65 years with less than high school education (n=4) was considerably smaller than those exceeding high school education (n=8).

Slightly more than half (57.5%) of the sample indicated they had a chronic illness/illnesses. The most common illnesses reported were cardiovascular conditions, which included myocardial infarction, stroke, atrial fibrillation, peripheral vascular disease, and hyperlipidemia. Hypertension was the next most commonly reported illness, followed by arthritis and diabetes. Participants indicated that they did not participate in adequate exercise. Indeed, none of the participants (0%)
achieved the minimum required score of 21.7 which indicated adequate exercise.

According to the findings, the sample did not perceive themselves as physically fit. The physical fitness subscale had the highest number of subjects (n=15, 37.5%) that achieved the minimum score of 27.9, but a minimum of 70% of the sample was required to attain this score which indicated perception of physical fitness by this group of older adults.

Older adults in this sample did not perceive motivators to exercise based upon the findings. Only nine participants (22.5%) achieved the minimum score (34.1).

The findings for the last subscale of interest, perception of barriers, indicated older adults did not perceive barriers to exercise. None of the subjects (0%) achieved the score (24.7) or less which indicated perception of barriers.

Discussion

The findings of the current study supported the use of Pender’s Health Promotion Model to explain the determinants of health-promoting behaviors such as exercise in older adults. Older adults perceived low levels of physical fitness and motivators especially related to perceived health status, perceived control, and perceived benefits of
health-promoting behaviors. Although the total scores did not indicate the perception of barriers, item analysis reflected a trend in the perception of specific barriers related to time, constraints, personal capacities, and health status. Exercise frequency was determined to be affected by these cognitive-perceptual factors, as well as modifying factors such as age, education, and the influence of others.

According to the findings, older adults did not participate in adequate exercise. The findings coincide with results from previous studies which indicated a lack of physical activity with increasing age. This might have been related to the large number of participants over 65 years, which was the median age for the sample. Older individuals in this study might have been restricted from physical activity due to chronic illness. Since over half (57.5%) of the participants listed at least one chronic illness, and twelve individuals listed more than one chronic illness, this might have physically restrained the individuals from exercise. Another possibility is that individuals might have believed that exercise was contraindicated due to chronic illness, whether or not this was the case. Similar findings of the Young, King and Oka study (1995) revealed a majority of underactive older
adults. The finding that older adults did not participate in adequate exercise contradicted the conclusions of Melillo et al. (1996) that older adults do participate in regular exercise.

Responses to the open-ended question “I would exercise more if” were sorted into themes which may also provide some explanations for the lack of exercise participation in this population. Time constraints such as not having enough time, being too busy, or working were common reasons subjects did not exercise. The Melillo et al. study (1996) also suggested that time available determined the amount of exercise participation.

Low levels of exercise could be attributed to a lack of motivation to exercise, which was revealed by responses to the open-ended question and the low scores for the motivators subscale. The lack of motivation may have stemmed from a knowledge deficit of the importance or benefits of exercise or a lack of initiative. Responses such as “if it would help” and “no excuse, I just don’t take the time” were reflective of these deficits. These findings were supported by results of studies found in the review of literature. In the Sallis et al. (1989) study, cognitive variables were also found to be an important correlate of exercise as a lack of knowledge was a barrier
to promote participation. O’Neill and Reid (1991) also found knowledge barriers in older adults reflecting they believed they got enough exercise or did not need increased exercise. Subjects listed alternative activities that kept them physically active such as occupational, social, and leisure activities, which might have been substituted for a formal exercise program. These responses also may support the previously mentioned findings of O’Neill and Reid (1991) that older adults think they get enough exercise or do not need more.

The second major finding of the current study was that older adults did not perceive themselves as physically fit. These results contradicted previous findings of Howze et al. (1989) which indicated that older adults’ overall self-perception of health was high. Sixty five percent of the sample indicated they could not participate in many of the physical activities in which they were previously able to participate in. The most commonly identified statements on the PFEALOAS that this sample of older adults disagreed or strongly disagreed with was “I have a lot of energy”, followed by “I am physically fit”. The results for the current sample could be related to the presence of chronic illness (n=14) in those participants who were not physically fit (n=25). Older adults seemed to focus more on
physical capabilities rather than overall well-being, which may have attributed to the low self perception. In contrast, older adults in the Melillo et al. (1996) study perceived physical fitness holistically.

The findings for the motivator subscale revealed older adults did not perceive motivators to exercise. Furthermore, responses to the open-ended question “I would exercise more if” also indicated a lack of personal motivation. As previously mentioned, lack of motivation may stem from a knowledge deficit of the benefits of exercise. Howze et al. (1989) found that older adults’ perceptions of benefits positively influences behavior and serves as a motivator. Therefore, low levels of education in the sample as well as poor patient education from health care providers may have contributed to this group of older adults’ knowledge deficits regarding exercise. Another possibility could have been that the participants were taught the benefits but did not feel strongly about the importance for them personally.

The Padula study (1997) found relationship quality and social support was predictive of health promotion behaviors in elderly couples. Since 50% of the current sample was widowed and 17.5% indicated not married, the majority of the sample may have lacked characteristics that motivate
and influence older adults to exercise. On the other hand, 55% of the sample strongly disagreed or disagreed with the motivator question “I prefer to be in a scheduled exercise program”. Additionally, exercising with others did not motivate 47.5% of the sample. These findings may be representative of the independence and privacy of older adults who are not positively influenced by affiliation with others.

The findings of the current study revealed older adults did not perceive barriers to exercise. Ironically there were responses to the open-ended question “I would exercise more if” reflecting barriers. Seven out of twenty participants (35%) who responded to the open-ended question indicated they would exercise more if they did not have time constraints. Participants also indicated they were limited by personal capacities related to pain and bodily functions. Although the total scores did not indicate perception of barriers, there were individual statements on the PFEALOAS that reflected some perception of barriers. For example, twenty-nine participants (72.5%) agreed with the barrier question “it is difficult to exercise when I ache” and 25 participants (62.5%) agreed with “if my health were better, I would be more active”. These findings may have been related to the presence of chronic illness in the
sample as well as the ages of the sample. O’Neill and Reid (1991) found similar trends that indicated an increase in barriers occurred with increasing age as well as an increase in barriers related to illness and handicaps. Barriers that had the least effect on participants were fear of falling, lack of interest, or lack of transportation. Perhaps participants did not feel strongly about the effect of these or other barriers on the PFEALOAS.

Although the overall scores did not meet the criteria to affirmatively answer each research question, the researcher believed the scores may not have reflected participants overall perceptions for the subscales. Observations during data collection and perusal of questionnaires led the researcher to believe the majority of participants did not use the full spectrum of responses such as “strongly agree” or “strongly disagree”. Instead subjects responded “agree” or “disagree” which lowered their overall score. There is the possibility older adults truly did not feel strongly or that the concept was not fully understood despite explicit explanation and assistance during data collection.
Limitations

Limitations in this research study were related to the small number of subjects and unequal gender and race representation in the convenience sample, which limited the generalization of the findings. Another limitation was that data was collected from a primary care clinic which may have contributed to the lack of diversity and high prevalence of chronic illness in the sample. Additionally, the method of scoring did not adequately describe participants' responses. For example, if a subject responded "agree" with all eleven motivator statements, the total score would not indicate perception of motivators. The response "strongly agree" needed to be selected for the majority of the statements to attain scores indicating perception of motivators. Therefore, the method of scoring may have partially accounted for the overall low scores in all areas.

Conclusions

Based on the statistical findings from this study, the following conclusions were made:

1. Older adults do not participate in adequate exercise.
2. Older adults do not perceive themselves as physically fit.
3. Older adults do not perceive motivators to exercise.
4. Older adults do not perceive barriers to exercise.

**Implications for Nursing**

Several implications for nursing were gleaned from this study. The implications for nursing were related to practice, education, and research.

**Practice.** Results of this study emphasized the need for all health care providers to promote fitness and exercise in older adults by assessing activity levels and understanding the reasons older adults do or do not exercise. Clearly the nurse practitioner is in a unique position to work with older adults and to teach and encourage physical activity and exercise. The older population has special characteristics to consider when developing strategies to increase participation in exercise and improve physical fitness. Characteristics to focus on include age, marital status and social support, education, and the presence of chronic illness. The nurse practitioner should explore what older adults believe regarding the personal benefits of exercise and barriers to participation. Therefore, appropriate patient education could be individualized to teach the importance of exercise, decrease knowledge deficits, and overcome barriers to participation. The nurse practitioner could then provide specific guidelines and activities that not
only improve quality of life but also increase self-efficacy and appeal to older adults. The ultimate goal would be to enhance the quality of life and independence in a growing and aging population.

**Education.** Nursing curriculum at all levels should emphasize the importance of health promotion concepts such as adequate exercise and physical activity in older adults. Nurse practitioner students should have didactic opportunities to learn age appropriate guidelines for exercise. Clinical experiences should involve assessment of activity levels, sources of motivation and barriers to exercise, as well as exercise prescription.

**Research.** There is a need for more research on older adults and exercise. Future research should further investigate the activity levels of older adults as well as reasons for participation or nonparticipation. Additionally, motivators and barriers could provide information necessary to promote exercise specifically for older adults.

**Recommendations**

Based on the findings of this study, the following recommendations for future research and nursing practice were made:
Research

1. Replication of the study using a larger sample size of older adults.
2. Replication of the study in more geographically and culturally diverse settings.
3. Replication of the study using an alternative method of scoring or a different instrument to measure the exercise variables.
4. Conduction of a study that correlates demographic variables with exercise participation.
5. Conduction of a study comparing exercise habits and perceptions of men and women to determine if there is a difference between the groups.

Practice

1. Construction of an age specific assessment tool for activity level, physical fitness, motivators, and barriers to be utilized in conjunction with the history and physical exam.
3. Documentation of implementation and evaluation of strategies to increase participation in exercise.
References


Dishman, R. K. (1989). Determinants of physical activity and exercise for persons 65 years of age or older


APPENDIX A

APPROVAL OF THE COMMITTEE ON USE OF HUMAN SUBJECTS IN EXPERIMENTATION OF MISSISSIPPI UNIVERSITY FOR WOMEN
February 23, 1998

Ms. Kristi J. Spruell  
c/o Graduate Program in Nursing  
Campus  

Dear Ms. Spruell:

I am pleased to inform you that the members of the Committee on Human Subjects in Experimentation have approved your proposed research as submitted.

I wish you much success in your research.

Sincerely,

Susan Kupisch, Ph.D.  
Vice President  
for Academic Affairs

SK:wr

cc: Mr. Jim Davidson  
    Dr. Mary Pat Curtis
APPENDIX B

LETTER OF PERMISSION TO
USE QUESTIONNAIRE
Dear Ms Spruell

Thank you for your recent permissions request.

I can confirm that we would be happy to grant you permission to reproduce the self assessment tool from pp1220-1226 from Vol 25 of Journal of Advanced Nursing, subject to the usual acknowledgement of source.

Regarding obtaining further information on the scoring package, unfortunately we do not hold this kind of information and I would suggest you contact the author direct at the address given on the journal article.

I hope you find this information of assistance

Regards
Tracey Davies
Senior Permissions Assistant
APPENDIX C

AGENCY LETTER OF PERMISSION
TO CONDUCT STUDY
To whom it may concern,

I am a registered nurse and a graduate student at Mississippi University for Women. I am researching older adults' perceptions of physical fitness and exercise for my master's thesis. I am writing to request your permission to utilize the clinic as my data collection site. From my positive clinical experience, I believe the patient population at The Primary Care Group would provide excellent subjects for my research. The criterion for participation is adults over age 50.

Permission from the client will be obtained by signing the consent form and completion of the questionnaires. There have been no identified risks in the research and participation will not affect their treatment. The participant is free to withdraw from the study at any time. A copy of the informed consent is enclosed.

Thank you for your consideration.

Sincerely,

Kristi J. Spruell
RN, BSN

__________________________
Signature

__________________________
Date
APPENDIX D

LETTER OF INFORMED CONSENT
Dear Participant,

I am a registered nurse and a graduate student at Mississippi University for Women. I am researching how older adults feel about physical fitness and exercise.

I am asking you to complete two surveys, which will require approximately 10 to 15 minutes. There are no risks in participating in this study. Your participation will not affect your care at the Primary Care Group. Your agreement to participate in this study will be confirmed by completion of the survey and questionnaire and your signature on this form. Participation is voluntary and confidentiality will be maintained by separating your consent form from your answers. Group scores will be reported, but you will not be identified in the research in any way. You are free to withdraw from the study at any time.

Thank you for taking time to read and answer these questions. Your help is very appreciated and will help health care providers take better care of patients like yourself.

Sincerely,

Kristi Spruell, RN, BSN

I agree to participate in this study. I understand the terms of this consent.

Signature of participant ___________________________ Date _____________
APPENDIX E

DEMOGRAPHIC SURVEY
Demographic Survey

Please answer the following questions by filling in the correct blank.

1. Male ___________ Female ___________

2. Age ___________

3. Married ________ Not Married _________ Widowed ______

4. Circle your race

   Caucasian/White    African-American    Asian
   Native American    Hispanic        Other

5. Circle the highest grade you completed

   Less than high school  9th  10th  11th  12th
   Some college    Junior college    Bachelor degree    Masters    PhD

6. Do you have a chronic illness? Yes_______ No_______

   If yes, please list_____________________________________
   ________________________________________________________

7. I would exercise more if________________________________
   ________________________________________________________
APPENDIX F

PHYSICAL FITNESS AND EXERCISE ACTIVITY LEVELS OF OLDER ADULTS SCALE (PFEALOAS)
Please identify, by circling your answer, how often you participate in the following types of exercise. Exercise is defined as physical activity.

1. I take a walk
   - Never
   - Once a week
   - 2-3 times weekly
   - Daily

2. I use a bike for exercise.
   - Never
   - Once a week
   - 2-3 times weekly
   - Daily

3. I do specific exercises to improve strength and/or my flexibility.
   - Never
   - Once a week
   - 2-3 times weekly
   - Daily

4. I do housework or other odd jobs around the house to keep active.
   - Never
   - Once a week
   - 2-3 times weekly
   - Daily

5. I work in the garden/yard.
   - Never
   - Once a week
   - 2-3 times weekly
   - Daily

6. I dance.
   - Never
   - Once a week
   - 2-3 times weekly
   - Daily

7. I swim.
   - Never
   - Once a week
   - 2-3 times weekly
   - Daily

8. Please list any other things you do to keep you physically active.

Please read each statement carefully. Indicate the degree to which you agree or disagree with the statement by circling your answer.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. I am physically fit</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>10. I can do more than most people my age.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>11. I feel the same whether I am physically active or not.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>12. I am concerned that I will hurt or strain myself if I am too physically active.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>13. I sometimes get tightness in my chest when I exert myself.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>14. I have too little time for exercise.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>15. I prefer to be in a scheduled exercise program.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>16. I do not have the strength to exercise.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>17. I have a lot of energy.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>18. I feel able to face the day when I get up in the morning.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>19. I feel physically able to do what I want.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>20. I cannot do a lot of the physical activities that I used to be able to do.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>---</td>
<td>----------------</td>
<td>-------</td>
<td>----------</td>
<td>------------------</td>
</tr>
<tr>
<td>21. I feel that my mind and body work together.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>22. I feel better when I am active.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>23. If my health were better, I would be more active.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>24. I am not interested in exercise.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>25. Exercising gives me more energy.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>26. Exercising gives me a sense of accomplishment.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>27. Exercise keeps my mind active.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>28. I can take care of myself.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>29. I can do a lot for my age.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>30. Exercise is good for my heart.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>31. Exercise helps my spirits.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>32. I exercise to keep myself healthy.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>33. It is difficult to exercise when I ache.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>34. It is difficult to exercise if I feel depressed.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>35. Lack of transportation limits my exercise options.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>36. I want to exercise when I want, not when someone tells me.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>37. Bad weather prevents me from exercising.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>38. I feel better when I am active.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>39. I sometimes get short of breath when I exercise.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>40. Fear of falling prevents me from exercising.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>41. I prefer to exercise with others.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SD</td>
</tr>
</tbody>
</table>