

1999

## Perceived Benefits' and Barriers' Effect on Occurrence of Exercise in Women

Denise K. Petersen  
*Grand Valley State University*

Follow this and additional works at: <https://scholarworks.gvsu.edu/theses>



Part of the [Nursing Commons](#)

---

### ScholarWorks Citation

Petersen, Denise K., "Perceived Benefits' and Barriers' Effect on Occurrence of Exercise in Women" (1999).  
*Masters Theses*. 465.

<https://scholarworks.gvsu.edu/theses/465>

This Thesis is brought to you for free and open access by the Graduate Research and Creative Practice at ScholarWorks@GVSU. It has been accepted for inclusion in Masters Theses by an authorized administrator of ScholarWorks@GVSU. For more information, please contact [scholarworks@gvsu.edu](mailto:scholarworks@gvsu.edu).

PERCEIVED BENEFITS' AND BARRIERS'  
EFFECT ON OCCURRENCE OF EXERCISE IN  
WOMEN

By

Denise K. Petersen

PERCEIVED BENEFITS' AND BARRIERS' EFFECT ON OCCURRENCE OF  
EXERCISE IN WOMEN

By

Denise K. Petersen

A THESIS

Submitted to

Grand Valley State University

In partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN NURSING

Kirkhof School of Nursing

1999

Thesis Committee Members:

Theresa Bacon-Baguley, Ph.D., R.N.

Kay Kline, Ph.D., R.N.

Maureen Ryan, M.S.N., R.N.

## ABSTRACT

### PERCEIVED BENEFITS' AND BARRIERS' EFFECT ON OCCURRENCE OF EXERCISE IN WOMEN

By

Denise K. Petersen

Perceived benefits and barriers affect exercise occurrence. The purpose of this study was to determine the affect of perceived benefits of and perceived barriers to exercise in women, ages 20-69. A descriptive correlational design was used to determine this relationship. A convenience sample of 61 women were surveyed using the Exercise Benefits/Barriers scale, the activity section of the Health Promoting Lifestyle Profile, and demographical data. Data were analyzed using a Pearson's  $r$  correlation and an independent  $t$ -test. The hypothesis of a decrease in occurrence of exercise as perceived barriers increased and the hypothesis of an increase in occurrence of exercise as perceived benefits increased were supported. The relationship of age, income, or education to exercise occurrence was not significant. Implications of the study are that health care providers need to assist women to decrease their perceived barriers, while strengthening their perceived benefits, to assist in greater occurrence of exercise.

---

To my mother, brother and aunt who continue to give me  
unconditional love.

To my best friend Sara who kept telling me I was a good  
person.

To my fellow sufferers Brenda, Karen, Nadine and Mary: for  
without them, I never would have finished school.

## Table of Contents

List of Tables.....	v
List of Figures.....	vi
List of Appendices.....	vii
CHAPTER	
1 INTRODUCTION.....	1
2 CONCEPTUAL FRAMEWORK AND REVIEW OF LITERATURE.....	7
Conceptual Framework.....	7
Review of Literature.....	13
Research Questions and Hypotheses.....	21
Definition of Terms.....	22
3 METHODS.....	24
Design.....	24
Instruments.....	26
Procedures.....	27
4 DATA ANALYSIS/RESULTS.....	28
Description of Sample.....	28
Results.....	30
5 DISCUSSION AND IMPLICATIONS.....	34
APPENDICES.....	41
REFERENCES.....	48

## List of Tables

1.	Table 1.	Age and Education Demographics.....	28
2.	Table 2	Annual Income.....	29
3.	Table 3.	Total Scores for Scales.....	31

## List of Figures

1. The Neuman Systems Model, Adapted.....	9
---	---

## List of Appendices

APPENDIX A	Permission to Use the Exercise Benefits/Barriers Scale.....	41
APPENDIX B	Permission to Use the Health Promoting Lifestyle Profile.....	42
APPENDIX C	Cover Letter.....	43
APPENDIX D	Combination Tool Used for This Study.....	44
APPENDIX E	Approval from Grand Valley State University's Human Research Review Committee.....	47

## CHAPTER ONE

### INTRODUCTION

In a world of ever increasing healthcare costs, it is important to stay healthy. There has been a move, by the healthcare system as a whole, from treatment of illnesses to health promotion. The focus is now on maintaining a personal well-being and high level of health, or quality of living. Primary care providers can be the front line offense to teach and increase people's awareness and motivation to develop better health habits, including exercise.

#### Benefits of Exercise

The significance of exercise as a health promotion tool lies in the fact that routine exercise prevents, and is included in, the treatment for many of the leading causes of morbidity and mortality in the United States (Powell, 1988). A direct impact is seen on the incidence of cardiovascular disease, hypertension, osteoporosis, diabetes, acute respiratory disease, low back pain, and some mental illnesses (Dishman, 1988). Promoting health by preventing these disease processes before they begin can lead to improving quality of life while lowering health care costs over time. Therefore, fewer dollars would be spent in

disease treatment, including diagnostic testing, medication, therapies, and hospital stays.

Exercise is defined as "action or activity involving physical and mental exertion. Sustaining such exertion physically involves muscular strength, muscular endurance, flexibility and cardiopulmonary (aerobic) endurance" (Allan, 1992, p. 406). Recommendations for exercise are multi-fold. One goal is to achieve or maintain a conditioned cardiovascular system. It is the American College of Sports Medicine's (as cited in Allan, 1992) suggestion for a program of 3 to 5 days per week doing continuous aerobic exercise (20 to 60 minutes in duration) that raises the heart rate to 60-90% of maximal heart rate. This aerobic exercise can be any activity that uses large muscle groups. Resistance training is also strongly recommended for optimal total body conditioning.

In contrast to a structured exercise program, the Surgeon General released a report in 1996 that outlined a strategy to include exercise with daily activities. It was found that health benefits occur at a level of moderate activity, which is an expenditure of 150 calories per day or 1000 calories per week. These benefits, including cardiovascular benefits, increase as the level of activity increases. As the intensity of the activity increases, the necessary duration for the activity decreases to meet the "moderate" level range of activity. "Examples of moderate activity include playing volleyball for 45 minutes, raking

leaves for 30 minutes, swimming laps for 20 minutes, playing basketball for 15-20 minutes, or running 1.5 miles in 15 minutes" (Shalala, 1996). With these expanded guidelines for the types and levels of exercise possible, it is hoped that the American public will increase their level of activity and consequently move toward better health.

#### Health and Health Promotion Defined

The World Health Organization, in its constitution from 1947, suggests that health is more than an absence of illness or disease. Health is influenced by all facets of our lives, including physical, mental, emotional, and even spiritual dimensions (Edelman & Milio, 1994). Health, as a definition, is further explored by Edelman and Milio (1994) in the proposal that health and disease cannot be separated but are part of a continuum. This continuum has disease at one end and a high level of wellness at the other end. The progression along the continuum with treatment of the disease leads to a middle point where neither illness nor wellness is discernable. The goal, then, is the level of wellness and optimum "health" possible for that individual.

An important aspect of health is a person's own definition of health and illness. While disease is the body's pathological response, illness is the "human response" (Edelman & Milio, 1994, p. 14). The human response is a response of an individual and of those around him or her that changes his or her world and how it is viewed. The human response encompasses both the

psychological and physiological aspect of the disease process.

Some distinctions may be made regarding health promotion and disease prevention. Leavell and Clark (as cited in Edelman & Milio, 1994) have defined three levels of prevention: primary, secondary, and tertiary. Burns (as cited in Edelman & Milio, 1994) attached certain stages and nursing interventions to these levels of health promotion/disease prevention processes. "Primary prevention includes generalized health promotion as well as specific protection against disease" (p. 15). Therefore, primary disease prevention and health promotion may be practiced at the same time, but only in the absence of the disease process. Any early diagnosing or treating of disease is considered secondary prevention, which would then not include health promotion. Health promotion, as a focus of nursing, will accordingly be used in this study.

#### Affects of Health Beliefs on Health Promotion

When planning a health promotion program with one person or a group, each individual's health beliefs must be taken into account. Rubin, Voss, Derksen, Gateley, and Quenzer (1996) suggest that a client be asked about his or her perception of four things: severity of the illness, susceptibility to an illness, treatment efficacy, and self-efficacy. In doing this, a clinician can identify perceived barriers that may lead to failure of meeting health promotion goals. This is supported by Naslund, Fredrikson,

Hellenius, and de Faire (1994) who conducted a non-pharmacological trial study to reduce coronary heart disease. They found that a belief in treatment efficacy and the perceived threat to health was a greater indicator for those subjects to take part in the study.

In understanding the origin of certain health beliefs, culture must be considered. A person's cultural background will have an affect on his or her perception and beliefs about health and disease. Many of a person's beliefs and ideas have been handed down from generation to generation, and it is therefore recommended that education on health start where the person is in his or her understanding and knowledge, not where technology and scientific advances may be (Hiskins, 1995). In another study, Furnham (1994) found that of the variables studied, religious beliefs, political beliefs, and views on alternative medicine were the strongest influences on health-related beliefs. These two studies show the necessity for health care providers to view each client/patient as an individual, with many influencing factors contributing to create that unique individual, and ask questions that will lead to a personalized care plan.

#### Purpose of Study

The possibilities of increasing health and preventing illness by the habitual use of exercise leads to the question of why people do not exercise more regularly. Many aspects of a person's exercise habits may be determined by his or her beliefs regarding exercise, perceived barriers to

exercise, motivation to exercise, and what encourages that person to exercise. The purpose of this study was to determine the affect of perceived benefits of and perceived barriers on the occurrence of exercise in women ages 20-69.

## CHAPTER TWO

### CONCEPTUAL FRAMEWORK/REVIEW OF LITERATURE

#### Conceptual Framework

When examining the phenomenon of exercise and health promotion, the Neuman systems model (1996) can be used to guide research and practice. The Neuman systems model incorporates the four foci of nursing designated as the client/client system, environment, health, and nursing. These terms will be described with the concepts they represent and how they relate to the phenomenon of exercise.

#### Description of Health

Health, as described by Neuman (1996), is "equated with optimal system stability, that is, the best possible wellness state at any given time" (p. 33). She goes on to state that health is "living energy" due to the rise and fall along a continuum during the client's lifespan. This can be caused by the basic structure of the client and its responses, negatively or positively, to its environmental stressors. The opposite of health, illness, is caused by a greater expenditure of energy than the system produces. Neuman refers to this as "entropy." The greater the production of energy, with a lower expenditure, leads to better health, or "negentropy."

### Description of Nursing

Nursing is included in the model as assisting the client system to achieve and maintain optimal health. This optimal health would be the best possible health state for a specific client at any given time. A nurse is considered the link between the client system, the environment, health, and nursing. Nurses accomplish this by using prevention as an intervention.

### Description of the Client/Client System

The client is referred to as a single individual or a group of individuals. In a visual model, the client is represented by a set of concentric circles (see Figure 1). The solid innermost circle represents the client's minimum skills and necessities for survival, such as maintenance of normal body temperature, genetic response patterns, and the strength or weakness of body organs. Several lines of defense surround the inner circle. These lines from the inside out include three lines of resistance, the normal line of defense, and the flexible line of defense.

The flexible line of defense is the outermost circle and is represented by a broken line. The line of defense is a dynamic state that acts as a buffer system to stressors that may be encountered by the client system. Neuman (1996) describes this line as having an accordion-like affect that provides more coverage and defense as it expands, and is less effective the closer it comes to the normal line of

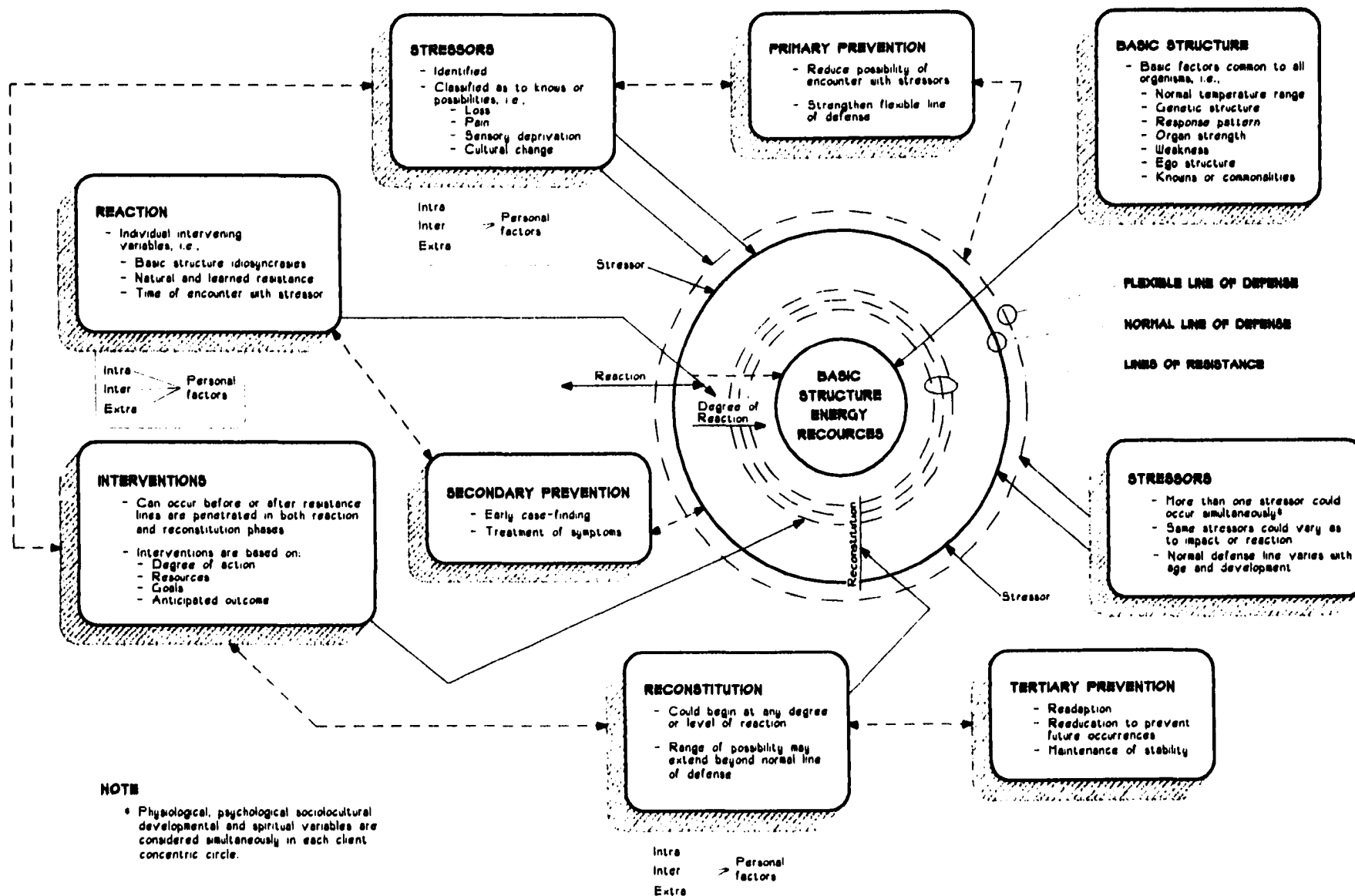


FIGURE 1 - ADAPTED FROM THE NEUMAN SYSTEMS MODEL (1996)

defense. When a stressor breaches the normal line of defense, a reaction will occur within the client system.

These stressors can be attacks on five variables that compose the client as a system. These five variables are physiological, psychological, sociocultural, developmental, and spiritual. These terms are described by Neuman (1996) as: (a) physiological - refers to bodily structure and function, (b) psychological - refers to mental processes and relationships, (c) sociocultural - refers to combined social and cultural functions, (d) developmental - refers to life developmental processes, and (e) spiritual - refers to spiritual belief influence.

The three broken line circles closest to the inner circles are the lines of resistance. These lines are only activated when stressors have penetrated the flexible line of defense and the normal line of defense. Activation of these lines of resistance by known and unknown agents supports the normal line of defense and acts to allow stabilization of the client system. Some examples of the known factors are the immune system and the production and use of white blood cells. If this stabilization does not occur, exhaustion of resources and death may occur.

#### Description of Environment

The environment of the client system is comprised of internal and external factors. Some influences are positive and some negative. Some stressors may be more influential on the client system than normal, given the situation and

compounding factors that are present. While the internal factors are within the client system, and the external factors are outside the lines of defense, Neuman (1996) also describes a created-environment that encompasses the flow and energy of both the internal and external environment. This created-environment is a protective layer that affects the response to, while being affected by, any given stressor internally or externally. Examples of this interaction are "the use of denial or envy (psychological), physical rigidity or muscular constraint (physiological), life-cycle continuation of survival patterns (developmental), required social space range (sociocultural), and sustaining hope (spiritual)" (p. 32).

#### Types of Prevention

Prevention has three levels: primary, secondary, and tertiary. Primary prevention is considered to be provided when "the degree of risk or hazard is known but a reaction has not yet occurred" (Neuman, 1996, p. 35). This may include preventing exposure to a certain stressor and also strengthening the lines of defense against the possible exposure.

Secondary prevention occurs when existing symptoms are present. At this point, intervention functions to stabilize the client system and strengthen the internal lines of defense to minimize the reaction of the system to the stressor.

If secondary prevention fails to be adequate, tertiary

prevention is required. Tertiary prevention is considered an intervention to allow system reconstitution and return to wellness. "The goal is to maintain an optimal wellness level by supporting existing strengths and conserving client system energy" (Neuman, 1996, p. 37).

In further discussion, Neuman (1996) states that since her model is a wellness-oriented model, she considers primary prevention to be comparable to health promotion. This can be performed in the assessment of risks and threats to the client system by potential stressors. Plans can then be formed to initiate activities to strengthen the client's lines of defense and possible avoidance of stressor occurrence.

#### Application of Conceptual Framework

The Neuman systems model (1996) can be a tool in connecting exercise and health promotion. Nursing can assess the client in terms of current strengths, lines of defense that are in place, and the condition of the lines of defense as they are related to exercise. That is, nurses would conduct the assessment of current exercise practices, how the client is benefiting from their exercise, and how the client could improve in their exercise habits to strengthen their lines of defense. It would also be helpful to assess the known and potential stressors in the environment. This data can then be used when planning an intervention of exercise to increase the client's health status toward negentropy. Choices can be made on what is

most important and useful at that time and may be updated as necessary. Exercise can be considered a primary and secondary intervention in health promotion due to its capability of preventing or reducing the affect of stressor attack and also by strengthening the body and its defenses. The stressor would than have a reduced affect on the client.

### Review of Literature

Health is a concern that has frequently been researched, and discussed, and about which much has been written about. The span of literature covers many facets of health, health promotion, health beliefs, and exercise. The main categories in the literature address occurrence of exercise, health and exercise perceptions, health promotion and exercise, and benefits and barriers of exercise. Literature representing each of these areas are discussed.

### Occurrence of Exercise

Ferrini, Edelstein, and Barrett-Connor (1994) took a sample population from participants in the Rancho Bernardo Heart and Chronic Disease Survey started in 1972 to conduct their research. In 1989, 77% of the 4,618 surviving members completed a repeat survey to determine changes in health beliefs and behaviors in the past 15 years since their original survey. It was found that 27% (N=274) of men had a decrease in exercise, while 28% (N=290) reported an increase in exercise. The results for women showed 24% (N=323) decreased in exercise, while 33% (N=447) increased their exercise. It was also found that younger respondents (age

50-69) reported more positive health behaviors, such as change in diet and exercise, than did older respondents (age 70-89),  $p < .001$ .

Hurrell (1997) conducted a telephone survey of 450 adults, ages 25-65, to determine occurrence of exercise, reasons for exercising, and the role of health and fitness facilities in promoting regular exercise. The researcher found that 62.7% of the respondents engaged in regular exercise. "Staying in shape" was the reason given for 34.9% of those who exercised regularly, while 31.7% stated that their reason for exercising was "to keep healthy." They also reported that the use of a health club helped in maintaining their exercise routine, while lack of time was a major impediment for some respondents. These studies are in contrast to occurrence of exercise stated in a report from the U.S. Surgeon General in 1996 (cited by Clark, 1997). In that report, it was estimated that 60-70% of the adult population did not meet the minimum recommended level of physical activity.

Ruuskanen and Ruoppila (1995) found that overall involvement in physical exercise decreased as age increased. Their study consisted of 1600 randomly selected subjects, 800 in a group ages 65-74 and 800 in a group ages 75-84. Fifty percent of their study subjects reported regular walking, 40% did some form of home gymnastics, although not very intensive, and 20% stated they had no other physical activity besides what was considered necessary activities of

daily living.

A study conducted in New Zealand studied a group of men and women 60 years or older. The sample was comprised of 910 participants, 724 women and 186 men. Their ages ranged from 60-106 years old with a mean of 80.6 years for the total sample. Of the study participants, 18.9% did not have any housework-related physical activity, 48.7% did not undertake any leisure-time physical activities and 15.6% did not undertake any physical activity. It was shown that non-participation was found higher in women, those in the older age groups (90 years or above), institutional living, and those who were cognitively impaired (Galgali, Norton, & Campbell, 1998).

#### Health and Exercise Perceptions

Ferrini, Edelstein, and Barrett-Connor (1994), in their study described previously, found that those who reported confusion about how to stay healthy (47%), or a lack of motivation to engage in healthful behaviors (25%), were less likely to make positive lifestyle changes. Their conclusion was that increasing age does not diminish the relationship between health beliefs and behaviors. Since 40% of those aged 50-69 and 34% of those aged 70-89 stated that health remains important to them ( $p < .01$  for both percentages), the researchers suggest that campaigns be aimed at older adults that reduce confusion on positive health behaviors to improve health. On the other hand, those respondents who agreed that diet and exercise were important for optimal

health showed behavioral changes of decreased salt (74%), decreased fat (78%), and increased exercise (34%).

Ziff, Conrad, and Lachman (1995) conducted research to study the relationship between perceived control and perceived responsibility for health. They received back 186 anonymous questionnaires from employees of a technology company, ages 20-63. There was a direct correlation between perceived responsibility and perceived health,  $r=.14$ ,  $p<.05$ , and also between perceived control and perceived health,  $r=.27$ ,  $p<.001$ . It was found, however, that perceived responsibility did not contribute significantly to the explanation of variance in health and several health-related behaviors, such as exercise. They found that the variables of perceived control and perceived responsibility for health were unrelated. It is the authors' suggestion that sense of control rather than sense of responsibility should be targeted for health promotion efforts.

#### Health Promotion and Exercise

Myers and Roth (1997), in a study of 432 undergraduate college students, assessed current exercise participation, intention to become more active, perceived benefits of exercise, and perceived barriers to exercise. They found that the responses fell into four categories relating to barriers and benefits of exercise. The benefits were described as social, psychological, body image, and health. The barrier categories were time-effort, social, physical effects, and specific obstacles. Univariate analyses showed

significant gender effects for the psychological,  $F=8.40$ ,  $p<.01$ ; body image,  $F=20.17$ ,  $p<.0001$ ; and social,  $F=11.10$ ,  $p<.001$ , subscales. "Women reported significantly [level of significance not given] more psychological ( $M=3.55$ ) and body image ( $M=4.15$ ) benefits but fewer social ( $M=2.71$ ) benefits than men ( $M_s=3.30$ ,  $3.80$ , and  $3.04$ , respectively)" (p. 281).

Jones and Nies (1996) studied the perceived benefits and barriers of exercise, the current exercise levels, and perception of importance of exercise in 30 older African-American women by convenience sample in senior centers. The results showed that most of the respondents stated their benefits of exercise could be categorized as life enhancing, such as decreasing stress and tension, enjoying exercise, and improving mental health. Some of the barriers to their exercise included accessibility, availability, and too much physical exertion.

McAuley, Courneya, Rudolph, and Lox (1994) conducted a study to find the effects of an efficacy-based intervention in enhancing exercise adherence in a sample of sedentary middle-aged males and females, ages 45-64. A total of 114 subjects were randomly selected into 2 groups of "exercise plus intervention" or "exercise plus attentional control." The exercise frequency, miles walked and minutes walked were measured over a 5 month time period. It was found that an intervention program designed to maximize information pertaining to participant's capabilities had a greater impact on exercise adherence in the later months than that

of the control group ( $p < .05$ ). They also found that self-efficacy was a significant predictor of exercise frequency over time ( $p < .001$ ). They, however, did not look at possible cognitive factors that may be underlying adherence and may have had an impact on these findings.

#### Benefits and Barriers of Exercise

Sorenson, Anderssen, Hjermand, Holme, and Ursin (1997) conducted a one-year intervention study to determine the affects of diet and exercise on self-concept. The sample included 208 healthy individual (191 males, 17 females) with a range of ages from 39 to 49 years. The sample was split in to 4 intervention groups of "diet only", "exercise only", "diet and exercise", and "no intervention." It was found that exercise participation, with or without diet included, had a positive affect on perceptions of one's self in regards to exercise mastery, body perception, social comfort, and fitness perception ( $p < .001$ ). Their research showed that the higher the compliance with an exercise program, the stronger the affects on the self-perception ( $p < .01$ ).

Ruuskanen and Ruoppila (1995) conducted a cross-sectional study of 1224 persons born in 1904-1913 and 1914-1923 living at home in a city in Finland to determine the occurrence of exercise and its affect on personal well-being. It was found that 40-50% had a regular walking routine, 26-39% performed some form of a home gymnastic routine which was thought to not be very affective by the

researchers, and about 20% were no more physically active than what was necessary for routine activities of daily living. Self-rated meaningfulness of life and better subjective health were extensively reported by the sample as related to regular and intensive physical exercise. These relationships were more obvious among the younger cohort (65-74 years old) than the older cohort (75-80 years old.) The results suggest that involvement in physical exercise may promote positive perceptions of psychological well-being among the elderly. On the other hand, psychological well-being seemed to be an important predictor for staying physically active at advanced ages.

Stewart et al. (1994) studied whether or not levels of physical activity of a patient with various chronic diseases are associated with subsequent functioning and well-being during a 2-year longitudinal study. The sample included 1758 adult patients who completed questionnaires as a cross-sectional baseline and then repeated these 2 years later as an endpoint for comparison. It was found that higher baseline levels of exercise were uniquely associated with better functioning and well-being at baseline. These findings for energy/fatigue, overall psychological distress/well-being, and current health perceptions were comparable two years later ( $p < 0.05$ ).

Ferrini, Edelstein, and Barrett-Connor (1994), as mentioned previously, found that older respondents reported a higher rate of confusion regarding how to stay healthy

than younger respondents (29% vs. 19%), while younger respondents were more likely to report a problem with motivation (40% vs. 34%) to exercise.

Taunton et al. (1997) presented a review of literature discussing the recent research concerning elderly women, strength training, special considerations, and barriers to physical activity that this group may encounter. It was the researchers' premise that elderly women typically have more barriers to participation in physical activity than do other groups. Because of decreased participation, these elderly women may consequently have higher disability rates.

Young (1996) interviewed 178 people 75 years old and older to examine the importance of health and health promotion in this age group. It was also the intent to determine the information on health received by the sample from their local health care providers, along with the sample's internal locus of control and their health behaviors. Evidence was found which indicated that the elderly are a group of people who would welcome health-promotion activity, provided it is given in easily accessible forms.

#### Implications for this Study

Since health promotion activities been found to be important in the elderly, it is a question if this is similar across the different age groups. More information, however, needs to be attained to determine if this is true.

By conducting research on exercise of different age

groups, and their perceptions of benefits and barriers of exercise, health care providers would be better able to assess exercise habits. The client can then be assisted in obtaining her optimum health level by more informed intervention planning and accurate evaluation.

#### Research Questions

1. What is the actual occurrence of exercise in women ages 20-69?
2. How does age affect occurrence of exercise?
3. How does income affect occurrence of exercise?
4. How does level of education affect occurrence of exercise?
5. How do perceived benefits compare to perceived barriers?
6. Is there a correlation between perceived benefits and occurrence of exercise?
7. Is there a correlation between perceived barriers and occurrence of exercise?

#### Hypotheses

1. A higher level of education directly correlates with a higher occurrence of exercise.
2. A higher level of income directly correlates with a higher occurrence of exercise.
3. Younger women are more likely to exercise than older women.
4. As perceived barriers to exercise increase, the rate of occurrence of exercise will decrease.

5. As perceived benefits increase, the rate of occurrence of exercise will also increase.

#### DEFINITION OF TERMS

Occurrence is the incidence or frequency that an activity actually takes place.

Exercise is defined by the several different facets that were studied. These are intensity, duration, and frequency. The choices given in the tool to describe the client's exercise habits varied according to intensity, duration, and frequency of the activity. These included taking part in leisure-time physical activities, taking part in light to moderate physical activity that lasts 30-40 minutes five or more times a week, and exercising vigorously for 20 or more minutes at least three times per week. Other miscellaneous descriptors were asked, such as: following a planned exercise program, checking pulse rate when exercising, and performing stretching exercises at least three times per week.

Age is how old the person is in years.

Income is the yearly rate of pay received for work completed.

Education is the highest grade completed by the client.

Perceived benefits are an individual's thoughts or ideas on the possible effects that may be gained from an idea or practice. Examples of perceived benefits are more energy, completing activities of daily living without fatigue, better health, better self-image, and higher self-

esteem.

A perceived barrier is any personal mental belief or physical hindrance that prevents an individual from carrying out a thought or idea. Examples of perceived barriers are limited amount of time, poor access to exercise facilities, poor weather conditions, low amount of energy to complete the task, and lack of social support.

## CHAPTER THREE

### METHODS

#### Design

A descriptive, quantitative, cross-sectional design was implemented to answer the research questions regarding perceived benefits of and perceived barriers to occurrence of exercise. The sequence of the investigation was to determine what the respondent perceived the benefits of and barriers to exercising were on a personal basis, and what the person's stated occurrence of exercise was.

Several issues were considered when looking at the research design. These were the type of measurement tools to be used, the reliability and validity of the tool, and the possibility of attrition from the study.

The measurement tool was a combination of two tools in a Likert-scale format and one section of demographical information (see Appendix D). Both tools are discussed in respect to individual reliability and validity scores and then as a combined tool. Since the tool was measuring subjective data for each individual, each individual may have interpreted the meaning of a given question differently. Therefore, instructions were given for the

individual to provide the response that best described or was closest to what she felt or did.

Attrition is always possible in any study. Some may have not wanted to participate due to lack of time. Subsequently, the tool was kept brief to only include questions from the Health-Promoting Lifestyle Profile II that pertained to exercise. The combination tool consisted of only 51 questions plus demographical data. The estimated time to complete the tool was five minutes.

The advantages of the use of questionnaires are many. Respondents have felt more inclined to be honest when completing a written questionnaire individually rather than being asked the same questions face to face. It was also less time consuming on the part of the respondents; they were done in the time it takes to fill out the questionnaire with no further need of follow-up or future commitment. The researcher also spent less time in collecting and analyzing the data when using a quantitative research approach. Another advantage of using quantitative data was the possibility of assigning a numerical value to the data for using computer analysis and statistical computations.

#### Sample

The site chosen for this research was a family practice office in a small town in southwest Michigan. The office medical staff consists of 2 MDs, 1 DO, and several RNs. It has a small laboratory and x-ray room. The office services the local community and provides care for dormitory students

residing at the university nearby.

The population studied included females, aged 20-68, that came to the office for scheduled office visits. Basic demographical information was asked to determine occupation, age, education level and annual income in order to describe the sample (see Appendix D). Exclusion criteria for this study included any medical problem that limits physical activity or any prescribed physical activity limitation.

The sample was a convenience sample due to time and financial constraints of the researcher. With the time constraints and possibility of low interest in the study, a sample of at least sixty was needed for research approval, although a power analysis was not used to determine this number.

### Instruments

Two tools were used, one in order to measure occurrence of exercise and the other to measure the benefits of and perceived barriers to exercise. The first tool was the Exercise Benefits/Barriers Scale developed by Sechrist, Walker, and Pender (1987). This tool measured the perceived benefits of and barriers to exercise and was a 43-item, 4-point Likert scale questionnaire. The authors reported a Cronbach's alpha for the total instrument as .954, with the benefits scale as .954 and the barriers scale as .866. Analysis of the EBBS for this study showed a Cronbach's alpha of .963, with the benefits scale of .955 and the barriers scale of .9008.

The second tool was the exercise subscale of Walker, Sechrist, and Pender's (1987) Health Promotion Lifestyle Profile II. This subscale was a 4-point Likert scale. Data were coded according to the number directly indicated. The alpha coefficient for this subscale was reported by the authors as .81. The analysis done for this study showed an alpha of .904.

### Procedures

Subjects were asked to participate on a voluntary basis. No questions were asked by the health care provider as to whether or not the client was participating in the study. Therefore, the client did not feel or perceive that the care she received was based on her participation in the study. When a client arrived and checked in with the receptionist, she was asked by the receptionist if she would like to participate in a study regarding physical exercise by filling out a questionnaire while she waited to be seen. The questionnaires were returned to a labeled box in the waiting area and collected by the researcher at a given time each week. The researcher then coded the data for easier statistical analysis and interpretation.

No intervention was planned. The researcher was more interested in the assessment of exercise perceptions and occurrence in order that more effective interventions may be planned in the future. Since there was no intervention, potential hazard to the subjects was minimal.

CHAPTER FOUR  
DATA ANALYSIS/RESULTS

This study was conducted to determine the affect of perceived benefits and perceived barriers on the occurrence of exercise in women.

Description of Sample

A total of 70 women participated in the study. Nine of these participants were not included due to not meeting the age criteria. The mean age was 40.75 and mean completed years of education was 14.8 (see Table 1). Fifty (81.9%) respondents reported finishing at least one year of college.

Table 1

Age and Education Demographics

Demographics	<u>M</u>	<u>SD</u>	<u>Range</u>
Age	40.75	13.21	20-68
Education	14.80	3.83	4-27

Note. Age and Education were measured in years.

The respondents were asked to list their occupation. Occupations varied and included unemployed(1), students(12), unskilled laborers(5), skilled laborers(16), college-prepared professionals(21), and some retired(6). The highest percentage of respondents earned an annual income of \$10,000 or less (see Table 2).

Table 2

Annual Income

Income	<u>n</u>	<u>% of Sample</u>
\$0-10,000	20	32.8
\$10,001-30,000	17	27.9
\$30,001-50,000	12	19.7
Over \$50,000	10	16.4

Reason for visit to the office was divided into two groups, illness and routine physical exam. Twenty-three respondents (37.7%) were seen for an illness, 31 respondents were seen for a routine physical exam, and 7 (11.5%) did not comment. Twenty-three (37.7) respondents answered that they did have long-term health problems while 34 (57.7%) answered that they did not. Only two (3.3%) respondents reported being instructed by a health care provider to limit

## Data Analysis and Results

For this study, the dependent variable was occurrence of exercise in women, as measured by the physical activity scale from the Health-Promoting Lifestyle Profile (HPLP). Two of the independent variables were perceived benefits and perceived barriers, as measured by the Exercise Benefits/Barriers Scale (EBBS). Other independent variables included were age, education level completed, and income. All variables were considered ordinal.

Total scores for the benefits scale alone, the barriers scale alone, the entire EBBS, and the activity scale of the HPLP were calculated separately. The benefits scale had 29 questions with a mean of 92.03. The barriers scale had 14 questions with a mean of 29.96. The entire EBBS had a mean of 131.94. The activity scale had 8 questions with a mean of 2.26 (see Table 3).

There were 70 returned questionnaires, of which 61 were usable. Upon the entry of the data for the EBBS, it was found that 23 (37.7%) subjects had incomplete data. According to the directions for scoring the EBBS, those with greater than 5% (2 questions) missing were not included in the analysis. Those that had 2 or less questions unanswered were imputed. This was done by finding the median answers for the given questions and using them for the missing data. The final analysis discarded only four (6.5%) subjects from the remaining 61 subjects in the study.

Table 3

Total Scores for Scales

Scale	<u>M</u>	<u>SD</u>	<u>Range<sup>a</sup></u>	<u>Range Possible<sup>b</sup></u>
Complete EBBS <sup>c</sup>	131.94	17.47	99-169	43-172
Benefits <sup>d</sup>	92.03	11.52	74-116	29-116
Barriers <sup>e</sup>	29.96	7.58	17-53	14-56
Activity	2.26	.82	1-4	1-4

<sup>a</sup>Actual range of scores reported by the respondents.

<sup>b</sup>Actual range of scores possible on the tools.

<sup>c</sup>The higher the score, the more positively exercise is perceived.

<sup>d</sup>The higher the score, the more benefits perceived.

<sup>e</sup>The higher the score, the less barriers perceived.

The first research question asked for the stated occurrence of exercise by the participants. The overall level of exercise was rated on a scale of one to four with a "one" being never to a "four" being "routinely." The average score was 2.26 (SD 0.82). The number indicates that the average respondent exercises "sometimes."

The second research question asked if age affected occurrence of exercise. A Pearson's r correlation was run with a result of  $r = -.033$  and was not found to be significant at  $p < .05$ . The ordinal data were then divided into two nominal groups of "less than forty years of age" and those "forty years and older." An independent t-test was run and found to not be significant ( $t = -.55$ ,  $df = 59$ ,

$p=.588$ ).

The third and fourth research questions asked if level of income and education affected occurrence of exercise. Income and occurrence of exercise were analyzed by a Spearman's rho correlation for the ordinal data ( $r=.003$ ,  $p=.981$ ). When this was found to not be significant, an independent t-test for the two nominal groups of income of "\$30,000 or less" and "\$30,001 or greater" ( $t=.54$ ,  $df=57$ ,  $p=.592$ ) was run with the same results. Likewise, the level of education and occurrence of exercise were determined by a Pearson's r correlation,  $r=.052$ ,  $p=.54$ , and were found to not be significant.

To compare perceived benefits to perceived barriers for research question number five total scores were computed for the benefits scale and barriers scale separately. A Pearson's r correlation was then run with the results of  $r=-.6477$ ,  $p=.000$ . This shows a strong indirect correlation between benefits and perceived barriers, that as one increases the other decreases.

Perceived benefits were compared to occurrence of exercise to answer the sixth research question. The total score for each participant was computed and then averaged. A Pearson's r correlation was run on the average benefits score and the average occurrence of exercise score for the whole sample. The results ( $r=.5668$ ,  $p=.000$ ) were significant and showed a positive correlation. As perceived benefits increased, the rate of occurrence of exercise also

increased.

To answer the final research question of the possible correlation between perceived barriers and occurrence of exercise, a Pearson's  $r$  correlation was run on the average barriers score and the average occurrence of exercise score. The results were significant ( $r=-.5908$ ,  $p=.000$ ) and show an indirect correlation. As perceived barriers increased, the rate of occurrence of exercise decreased.

The first hypothesis stated that a higher level of education directly correlated with a higher occurrence of exercise. As the results of the Pearson's  $r$  correlation was  $r=.052$ ,  $p=.54$ , this was not supported.

The second hypothesis stated that a higher level of income directly correlated with a higher occurrence of exercise. This was also not supported,  $p=.981$ .

The third hypothesis stated that younger women are more likely to exercise than older women. The two groups of "less than forty years of age" ( $N=33$ ) and "forty years and older" ( $N=28$ ) showed no significance ( $p=.588$ ).

The fourth hypothesis stated that as perceived barriers to exercise increased, the rate of occurrence of exercise decreased. This was supported and shows an indirect correlation ( $r=-.5908$ ,  $p=.000$ ).

The fifth hypothesis stated that as perceived benefits of exercise increased, the rate of occurrence of exercise increased also. This was supported and shows a direct correlation ( $r=.5668$ ,  $p=.000$ ).

## CHAPTER FIVE

### DISCUSSION AND CONCLUSIONS

The main conclusions of this research are two supported hypotheses: as perceived barriers to exercise increase, the rate of occurrence of exercise will decrease and as perceived benefits of exercise increase, the rate of occurrence of exercise will increase.

There was not a relationship found between age, income, or level of education and the occurrence of exercise in this sample of women. This is contrary to the studies regarding age and exercise that found younger respondents exercised more (Ferrini, Edelstein, & Barrett-Connor, 1994; Ruuskanen & Ruoppila, 1995).

The fact that the respondents of this study only exercise "sometimes" may be attributed to many different reasons. This study was conducted in December in Michigan. The cold weather may be a hinderance due to a participant not being able to exercise outside or not wanting to travel to a health club on bad roads. This is comparable to the results found by Jones and Nies (1996) who found availability and accessibility to be the most common barriers to exercise. A low occurrence of exercise may also be due to the many roles of women that tend to take a

majority of their day, leaving very little time for personal needs. A final possibility for this finding is a lack of motivation, although specific individual perceived barriers were not examined in this study.

Age is another characteristic that had no significant affect on occurrence of exercise in this study. This may be due to greater media attention of better health habits in all stages of life. There has been an increase of television, radio, and article coverage on better health habits in later years that will increase life expectancy while maintaining a better quality of life. Another cause may be from advances in medicine in illness prevention causing more debilitating health problems to occur later in life, past the ages of this sample. It may also be that more health care providers are prescribing exercise as a secondary prevention measure in older women who already have health problems, therefore increasing the occurrence of exercise in the older women of this sample. A final reason for these findings could be due to the small sample size. Significance may be found if the sample size was much larger.

The lack of significance of income affecting occurrence of exercise could be characteristic of this area only. The small town in southwest Michigan is a low cost of living area but has many businesses in surrounding areas that have reasonable paying jobs. For those who prefer to exercise in a health club, the local university has a women-only

facility that only charges \$120/year for a membership. This allows them to take part in aerobic classes, have use of cardiovascular machines, and use of weights and weight machines. Other health clubs in the neighboring towns charge up to \$360/year for a membership. This sample of women may also prefer to exercise by inexpensive means such as walking, cycling, other cardiovascular methods outside, or by walking at a nearby mall.

Education does not seem to be a factor in this sample because of the high rate of college education attained. Very little comparison was therefore able to be conducted. Most colleges require a health education class as one of the general requirements for an associate or bachelor degree. This would then lead this researcher to believe the low occurrence of exercise would not be due to a lack of knowledge of exercise benefits to health or the constituents of a regular exercise program. However, there is a question regarding the wording of the tool regarding education. Three of the subjects stated that they completed only four years of school. This is unclear to the researcher if the subjects did only complete Grade 4 in elementary school or if the questions was misunderstood and they had completed four years of high school or four years of college. Rewording of this question should be completed before future use of this tool.

The support of the hypothesis that an increase of perceived barriers causes a lower occurrence of exercise can

be explained as a human phenomenon. The more obstacles a person has toward a given activity, the less likely she is to perform that activity. Likewise, the more benefits the person perceives toward a given activity, the more likely she is to perform that activity. This becomes a weighing of the positive and negative aspects that occurs with each decision for action every day of a person's life.

#### Application to Education

Further education needs to occur in health care provider educational programs regarding exercise. The contents may include what constitutes exercise, the health benefits of exercise, simple ways to increase occurrence of exercise, and how to tailor exercise programs to individuals.

#### Application to Administration

Businesses and corporations should be taught the benefits of exercise and its impact on the health of their employees. It can be shown that a greater increase of exercise with consequent better health leads to better productivity and less illness-related absences of their staff. Exercise and health awareness programs can be initiated with positive results for all involved. Many of the larger corporations already have given their employees access to on-site fitness rooms for their use. Other measures to increase occurrence of exercise would include adding health club memberships as an employment benefit and providing time out of the work schedule for exercise. The employers can also conduct their own short survey of the

employees' perceived benefits of and barriers to exercise and take measures to increase the benefits and decrease the barriers.

#### Application to Practice

One application is for health care providers to exercise themselves. It is far more affective to teach and encourage others to exercise when one has personal benefits and experience on the subject.

Due to the low occurrence of exercise, more encouragement to exercise is needed at each visit to a health care provider. At each annual exam, a woman needs to be assessed for activity level. The health care provider can then do a quick assessment of perceived benefits and perceived barriers in order to assist the client to incorporate better exercise strategies. The health care provider may also investigate into the client's current occurrence of exercise during visits due to illnesses. The goal is to keep the client moving toward personal optimal health.

#### Application to Theory

The intervention of including an activity assessment is considered a primary intervention or health promotion by Neuman (1996). Exercise is considered either a primary or secondary prevention, depending on the current health status of the client.

Exercise is considered primary prevention if conducted in the absence of health problems or illness. It would

become a means of strengthening the client's flexible line of defense that is first encountered by the stressor to the client's system.

Exercise is a secondary prevention measure if it is used as a treatment for or to reduce the effects of a health problem or illness. An example of this is strengthening the lines of resistance as a defense mechanism, such as using exercise to lower blood sugar levels in a non-insulin dependent diabetic client.

#### Limitations

One of the limitations of this study is that the results cannot be generalized to a larger population due to the small sample size and nonrandomization of selection of participants. Additional studies can be conducted on a larger scale to include a large enough sample.

Another limitation is that the survey only covers broad categories of perceived benefits and perceived barriers and does not deal with specifics of the participant's situation like a qualitative study would do. A possible solution is to follow the example of Jones and Nies (1996) who added an open-ended question to ask what the respondent found to be her specific barriers to exercise.

#### Suggestions for Further Research

This study was a basic design to determine the affect of perceived benefits and perceived barriers on actual occurrence of exercise. Further research is needed to determine what the specific perceived barriers and perceived

benefits are and if there are any trends in these perceptions. For example, do women have more problems with location, time, or lack of support? What interventions would then be needed to increase occurrence of exercise? What is the best motivation to encourage an increase in exercise?

Other research may focus on what women know about the relationship between exercise and better health. It might also focus on women's knowledge of how to exercise, how often to exercise, and exercise modifications to personalize an exercise routine.

## APPENDICES


## APPENDIX A

I plan to use the Exercise Benefits/Barriers Scale in a research project entitled "Perceived Benefits and Perceived Barriers that Affect Exercise Occurrence in Women Ages 20-69." This research project is for my thesis as partial fulfillment for a master's degree in nursing.

Signed,

  
Denise Petersen, MSN Student  
4780-2 E. Ridge Ave.  
Berrien Springs, MI 49103  
(616) 473-5128

Permission is granted to the above investigator to copy and use the Exercise Benefits/Barriers Scale for non-commercial data collection purposes such as research or evaluation projects provided that content is not altered in any way. The instrument may be reproduced in the appendix of a thesis, dissertation or research grant proposal without further permission. Reproduction for any other purpose, including the publication of study results, is prohibited without specific permission.

  
Betty J. Gadberry

(Instrument  
Author)

Date

December 14, 1998

U of M School of Nursing  
Center for Nursing Research  
Room 4232 400 N. Ingalls Bldg.  
Ann Arbor, MI 48109-0482

APPENDIX B

PERMISSION FORM

I plan to use the *Health-Promoting Lifestyle Profile II* in a research or evaluation project entitled:  
Exercise Occurrence & Perceived Benefits & Barriers to  
Exercise in Women Ages 13-69

I am enclosing a check for ten dollars (\$10.00) payable to the University of Nebraska Medical Center College of Nursing.

Denise Petersen  
Print Name

[Redacted Signature]  
Signature

MSN Student  
Position

616-473-5128  
Area Code Telephone #

4780-Z E. Dodge Ave.  
Mailing Address  
Barren Springs, MO 64013

Permission is granted to the above investigator to copy and use the *Health-Promoting Lifestyle Profile II* for non-commercial data collection purposes such as research or evaluation projects provided that content is not altered in any way and the copyright/permission statement at the end is retained. The instrument may be reproduced in the appendix of a thesis, dissertation or research grant proposal without further permission. Reproduction for any other purpose, including the publication of study results, is prohibited without specific permission.

[Redacted Signature]  
Susan Noble Walker

9/24/98  
Date

Please send two signed copies of this page to:

Susan Noble Walker, Ed.D., R.N., F.A.A.N.  
University of Nebraska Medical Center  
College of Nursing  
600 South 42nd Street  
Omaha, Nebraska 68198-5330

## APPENDIX C

**My name is Denise Petersen. I am conducting a research study in partial fulfillment for a master's in nursing degree at Grand Valley State University.**

**The purpose of this study is to determine what women in your age group perceive as benefits of and barriers to exercise. These benefits and barriers will then be compared to your description of your physical activity level. I chose women specifically because I have mostly women in my family and I think that women have different roles than men that affect their exercise habits. I would like to take the results from this study to help encourage the women in my future practice to exercise to improve their health.**

**All that the study requires of you is to fill out the following survey. There is no physical testing involved and no further participation is necessary. By completing the survey, you are indicating that you agree to participate in this study and you are willing to have your answers used in the study. All your answers will be kept anonymous. You will not be asked if you have or have not participated in this study when you see the nurse or doctor.**

**Please return this survey to the labeled box in the waiting room, whether you complete the survey or not. If you have any questions regarding this study, please feel free to contact me at 473-5128. If you have any questions or concerns regarding your rights as a participant of this study, please contact Professor Paul Huizenga who is chairperson for the Human Research Review Committee from Grand Valley State University at 616-895-2472.**

**Thank you for your time,**

**[REDACTED]**

**Denise Petersen, RN, BSN**

# APPENDIX D

**DIRECTIONS:** Below are statements that relate to ideas about exercise. Please indicate the degree to which you agree or disagree with the statements by circling SA for strongly agree, A for agree, D for disagree, or SD for strongly disagree.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I enjoy exercise.	SA	A	D	SD
2. Exercise decreases feelings of stress and tension for me.	SA	A	D	SD
3. Exercise improves my mental health.	SA	A	D	SD
4. Exercising takes too much of my time.	SA	A	D	SD
5. I will prevent heart attacks by exercising.	SA	A	D	SD
6. Exercise tires me.	SA	A	D	SD
7. Exercise increases my muscle strength.	SA	A	D	SD
8. Exercise gives me a sense of personal accomplishment.	SA	A	D	SD
9. Places for me to exercise are too far away.	SA	A	D	SD
10. Exercising makes me feel relaxed.	SA	A	D	SD
11. Exercising lets me have contact with friends and persons I enjoy.	SA	A	D	SD
12. I am too embarrassed to exercise.	SA	A	D	SD
13. Exercising will keep me from having high blood pressure.	SA	A	D	SD
14. It costs too much money to exercise.	SA	A	D	SD
15. Exercising increases my level of physical fitness.	SA	A	D	SD
16. Exercise facilities do not have convenient schedules for me.	SA	A	D	SD
17. My muscle tone is improved with exercise.	SA	A	D	SD
18. Exercising improves functioning of my cardiovascular system.	SA	A	D	SD
19. I am fatigued by exercise.	SA	A	D	SD
20. I have improved feelings of well being from exercise.	SA	A	D	SD
21. My spouse (or significant other) does not encourage exercising.	SA	A	D	SD
22. Exercise increases my stamina.	SA	A	D	SD
23. Exercise increases my flexibility.	SA	A	D	SD
24. Exercise takes too much time from family relationships.	SA	A	D	SD

# APPENDIX D

25. My disposition is improved by exercise.	SA	A	D	SD
26. Exercising helps me sleep better at night.	SA	A	D	SD
27. I will live longer if I exercise.	SA	A	D	SD
28. I think people in exercise clothes look funny.	SA	A	D	SD
29. Exercise helps me decrease fatigue.	SA	A	D	SD
30. Exercising is a good way for me to meet new people.	SA	A	D	SD
31. My physical endurance is improved by exercising.	SA	A	D	SD
32. Exercising improves my self-concept.	SA	A	D	SD
33. My family members do not encourage me to exercise.	SA	A	D	SD
34. Exercising increases my mental alertness.	SA	A	D	SD
35. Exercise allows me to carry out normal activities without becoming tired.	SA	A	D	SD
36. Exercise improves the quality of my work.	SA	A	D	SD
37. Exercise takes too much time from my family responsibilities.	SA	A	D	SD
38. Exercise is good entertainment for me.	SA	A	D	SD
39. Exercising increases my acceptance by others.	SA	A	D	SD
40. Exercise is hard work for me.	SA	A	D	SD
41. Exercise improves overall body functioning for me.	SA	A	D	SD
42. There are too few places for me to exercise.	SA	A	D	SD
43. Exercise improves the way my body works.	SA	A	D	SD

**DIRECTIONS:** This questionnaire contains statements about your *present* way of life or personal habits. Please respond to each item as accurately as possible. Indicate the frequency with which you engage in each behavior by circling **N** for Never, **S** for Sometimes, **O** for often, or **R** for routinely.

	Never	Sometimes	Often	Routinely
44. Follow a planned exercise program.	N	S	O	R
45. Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber).	N	S	O	R

# APPENDIX D

- |  |   |   |   |   |
|--|---|---|---|---|
| 46. Take part in light to moderate physical activity (such as sustained walking 30-40 minutes 5 or more times a week.  | N | S | O | R |
| 47. Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).   | N | S | O | R |
| 48. Do stretching exercises at least 3 times per week.   | N | S | O | R |
| 49. Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking car away from destination and walking). | N | S | O | R |
| 50. Check my pulse rate when exercising.   | N | S | O | R |
| 51. Reach my target heart rate when exercising.  | N | S | O | R |

52. How old are you in years? \_\_\_\_\_
53. What is your occupation? \_\_\_\_\_
54. What is your annual income range? \_\_\_\_0-10,000 \_\_\_\_10,001-30,000  
\_\_\_\_30,001-50,000 \_\_\_\_above 50,000
55. How many years of education have you had? \_\_\_\_\_
56. What is your reason for visiting the doctor's office today?

57. Do you have any long-term health problems? If so, please list them.

58. Has any health care provider ever told you to limit your physical activity?

*Thank you for your time in completing this survey. I appreciate your help in assisting me to complete my research for my class work.*

APPENDIX E



1 CAMPUS DRIVE • ALLENDALE, MICHIGAN 49401-9403 • 616/895-6611

December 16, 1998

Denise Petersen  
4780-2 E. Ridge Ave.  
Berrien Springs, MI 49103

Dear Denise:

Your proposed project entitled "***Perceived Benefits and Perceived Barriers that Affect Exercise Occurrence in Women Ages 20-69***" has been reviewed. It has been approved as a study which is exempt from the regulations by section 46.101 of the Federal Register 46(16):8336, January 26, 1981.

Sincerely,

[Redacted Signature]

Paul Huizenga, Chair  
Human Research Review Committee

## LIST OF REFERENCES

## LIST OF REFERENCES

Allan, J. (1992). Exercise program. In Bulechek, F., & McCloskey, J. (Eds.), Nursing interventions: Essential nursing treatments (2nd ed., pp. 406-424). Philadelphia: W. B. Saunders Company.

Clark, D. (1997). Physical activity efficacy and effectiveness among older adults and minorities. Diabetes Care, 20, 1176-1182.

Dishman, R. (Ed.). (1988). Exercise adherence: Its impact on public health. Champaign, IL: Human Kinetics Books.

Edelman, C., & Milio, N. (1994). Health defined: Objectives for promotion and prevention. In Edleman, C. & Mandle, C. (Eds.), Health promotion: Throughout the lifespan (3rd ed., pp. 4-21). St. Louis: Mosby.

Ferrini, R., Edelstein, S., & Barrett-Connor, E. (1994). The association between health beliefs and health behavior change in older adults. Preventive Medicine, 23(1), 1-5.

Furnam, A. (1994). Explaining health and illness: Lay perceptions on current and future health, the causes of illness, and the nature of recovery. Social Science Medicine, 39, 715-725.

Galgali, G., Norton, R., & Campbell A. (1998). Physical inactivity in New Zealanders aged 60 years and older. New Zealand Medical Journal, 111(10), 115-117.

Hiskins, G. (1995). Health education: What anthropology can teach us. Prof Care Mother Child, 5(1), 25-27.

Hurrell, R. (1997). Factors associated with regular exercise. Perception and Motor Skills, 84, 871-874.

Jones, M., & Nies, M. (1996). The relationship of perceived benefits of and barriers to reported exercise in older African American women. Public Health Nursing, 13(2), 151-158.

McAuley, E., Courneya, K., Rudolph, D., & Lox, C. (1994). Enhancing exercise adherence in middle-aged males and females. Preventive Medicine, 23(4), 498-506.

Morris, J., & Hardman, A. (1997). Walking to health. Sports Medicine, 23(5), 306-32.

Myers, R., & Roth, D. (1997). Perceived benefits of and barriers to exercise and stage of exercise adoption in young adults. Health Psychology, 16(3), 277-283.

Naslund, G., Fredrikson, M., Hellenius, M., & de Faire, U. (1994). Characteristics of participating and nonparticipating men in a randomized, controlled diet and exercise intervention trial. Scandinavian Journal of Primary Health Care, 1994(12), 249-254.

Neuman, B. (1996). The Neuman systems model (2nd ed.). Norwalk, CT: Appleton & Lange.

Pollock, M., Wilmore, J., & Fox, S. (1978). Health and fitness through physical activity. New York: John Wiley & Sons.

Rubin, R., Voss, C., Derksen, D., Gateley, A., & Quenzer, R. (Eds.). (1996). Medicine: A primary care approach. Philadelphia: W. B. Saunders Company.

Ruuskanen, J. & Ruoppila, I. (1995). Physical activity and psychological well being among people aged 65-84 years. Age and Aging, 24(4), 292-296.

Sechrist, K., Walker, S., & Pender, N. (1987). Development and psychometric evaluation of the exercise benefits/barriers scale. Research in Nursing and Health, 10, 357-365.

Shalala, D. (1996). Surgeon General's Report on Physical Activity and Health [On-line]. Available: <http://www.cdc.gov>.

Sorenson, M., Anderssen, S., Hjermand, I., Holme, I., & Ursin, H. (1997). Exercise and diet interventions improve perception of self in middle-aged adults. Scandinavian Journal of Medical Science and Sports, 7(5), 312-320.

Stewart, A., Hays, R., Wells, K., Rogers, W., Spritzer, K., & Greenfield, S. (1994). Long-term functioning and well-being outcomes associated with physical activity and exercise in patients with chronic conditions in the Medical Outcomes Study. Journal of Clinical Epidemiology, 47(7), 719-730.

Taunton, J., Martin, A., Rhodes, E., Wolski, L., Donnelly, M., & Elliot, J. (1997). Exercise for the older woman: Choosing the right prescription. British Journal of Sports Medicine, 31, 5-10.

Taylor, C., Lillis, C., & LeMone, P. (1989). Fundamentals of nursing: The art and science of nursing care. Philadelphia: Lippincott.

Walker, S., Sechrist, K., & Pender, N. (1987). The health-promotion lifestyle profile: Development and psychometric characteristics. Nursing Research, 36(2), 76-81.

Young, K. (1996). Health, health promotion and the elderly. Journal of Clinical Nursing, 5(4), 241-248.

Ziff, M., Conrad, P., & Lachman, M. (1995). The relative effects of perceived personal control and responsibility on health and health-related behaviors in young and middle-aged adults. Health Education Quarterly, 22(1), 127-142.