

1990

## Effect of an Outpatient Educational Program on the Rehabilitation of Myocardial Infarction Patients

Janice L. Hodges  
*Grand Valley State University*

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



Part of the [Nursing Commons](#)

---

### ScholarWorks Citation

Hodges, Janice L., "Effect of an Outpatient Educational Program on the Rehabilitation of Myocardial Infarction Patients" (1990). *Masters Theses*. 124.  
<https://scholarworks.gvsu.edu/theses/124>

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).

EFFECT OF AN OUTPATIENT EDUCATIONAL PROGRAM ON THE  
REHABILITATION OF MYOCARDIAL INFARCTION PATIENTS

By

Janice L. Hodges

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

1990

Thesis Committee Members

Professor Mary Horan

Professor Katherine Kim

Associate Professor Virginia Stamler

---

"ABSTRACT"

EFFECT OF AN OUTPATIENT EDUCATIONAL PROGRAM ON THE  
REHABILITATION OF MYOCARDIAL INFARCTION PATIENTS

By  
Janice L. Hodges

The purpose of this study was to answer the following question: Do myocardial infarction patients who attend an outpatient cardiac rehabilitation educational program have a higher level of knowledge and less anxiety than individuals who do not attend such a program? A quasi-experimental design with a nonequivalent comparison group was utilized. The nonprobability convenience sample included individuals hospitalized with a myocardial infarction. Sample size was twenty subjects in each of the two groups. A cognitive knowledge test and Spielberger's State Anxiety Inventory were administered within 48 hours of discharge. The experimental group attended an outpatient cardiac rehabilitation educational program which provided both information and support. At five weeks after discharge the cognitive knowledge test and State Anxiety Inventory were repeated by both groups. It was hypothesized that knowledge would be at a higher level and state anxiety would be lower among those who attended the program as compared to those who did not. The hypotheses were not supported as being statistically significant.

## Dedication

This thesis is dedicated to my husband, Denny and my daughters, Jenny and Jill whose continued support and encouragement were essential to the completion of this project.

### Acknowledgement

This project was funded by the American Heart Association of Michigan.

---

## Table of Contents

List of Tables  
vi.

List of Appendices  
vii.

### CHAPTER

1	INTRODUCTION .....	1
	Purpose .....	5
2	LITERATURE AND THEORY .....	7
	Literature Review .....	7
	Theoretical Framework .....	11
	Hypotheses .....	13
	Definition of Terms .....	13
3	METHODOLOGY .....	16
	Research Design .....	16
	Sample and Setting .....	17
	Instruments .....	19
	Procedure .....	21
	Experimental Treatment .....	22
4	RESULTS .....	25
	Characteristics of Subjects .....	25
	Analysis of the Research Hypothesis.....	30
5	DISCUSSION AND IMPLICATIONS FOR NURSING PRACTICE .....	32
	Discussion .....	32
	Further Limitations to the Study .....	34
	Implications for Nursing Practice .....	35
	Recommendations for Future Research .....	36
	Conclusion .....	37

## List of Tables

Table	Page
1 Sample Distribution by Age and Motivation.....	27
2 Sample Distribution by Level of Education.....	27
3 Sample Distribution by Sex and Occupation.....	28
4 State Anxiety and Cognitive Knowledge Scores ..	29
5 Analysis of Covariance for Posttest Cognitive Knowledge Scores .....	31
6 Analysis of Covariance on the State Anxiety Inventory Scores .....	31

## List of Appendices

Appendix	Page
A Demographic Data Form .....	38
B Motivation Items .....	40
C Cognitive Knowledge Test .....	41
D Spielberger State Anxiety Inventory .....	46
E Client Consent Form .....	47
F Posttest Cover Letter .....	49
G Reminder Post Card .....	50
H Experimental Treatment Goals .....	51



## CHAPTER ONE

### INTRODUCTION

Myocardial infarction is the leading cause of death in America, resulting in 540,000 deaths in 1984. As many as 1,500,000 Americans will have a myocardial infarction this year (American Heart Association [AHA], 1990). Over the past two decades the mortality rate from cardiovascular disease has started to decline. A better educated public has contributed to the decline. People are more aware of risk factors for coronary artery disease, their modification, and the symptoms of a heart attack. The advent of coronary care units has also contributed to the declining mortality rate. With more people surviving myocardial infarctions, attention has turned to the quality of life after the acute event. Thus, the inception of cardiac rehabilitation, the goal of which is that clients who have had myocardial infarctions can and should return to normal independent and productive living after experiencing the acute event.

Most cardiac rehabilitation programs are composed of different phases which have specific goals. Phase I, the

inpatient phase, has a goal to provide the patient and his or her family with the knowledge and skills needed to understand and modify lifestyle (Moynihan, 1984). With the advent of diagnosis related groups for prospective payment, the average hospitalization of an individual with a myocardial infarction has been shortened to five to eight days. Consequently, there is limited time to work with acutely ill people who go home to live with this chronic disease.

Learning about the medical regimen is fundamental to the patient's being able to participate in his or her own self care. However, an acute cardiac event, such as a myocardial infarction, imposes stress on the patient and family which affects the ability to learn (Burke, 1981). The successful adjustment which patients appear to achieve in the hospital seems to be altered when they face the stresses of life following discharge (Bilodeau & Hackett, 1971).

Learning and retention in the acute care setting is affected by many variables. It may be unrealistic for nurses to expect an individual who has had a myocardial infarction to leave the hospital with the knowledge necessary to make recommended lifestyle changes and appropriate decisions about care. Scalzi, Burke, and

Greenland (1980) found that retention of information received in the acute care setting is limited and that continued education after discharge appears to improve knowledge. Since coronary heart disease is one of the most serious threats to this nation's health and exacts an immeasurable economic toll, any remedial intervention deserves attention.

Some patients continue rehabilitation on an outpatient basis, with participation in Phase II cardiac rehabilitation. Phase II is an outpatient program focusing on group exercise three times a week. The goal of Phase II is to improve cardiovascular conditioning and assist the patient in making behavioral adjustments and lifestyle changes necessary to attain and maintain an optimal state of health (Moynihan, 1984). As patients proceed in the rehabilitation process, some continue with Phase III and IV which are community based maintenance programs for cardiovascular fitness. A valid concern is that not all clients are able to follow through with the outpatient programs. These programs tend to be quite costly and insurance companies have been hesitant to reimburse for cardiac rehabilitation. Other factors affecting participation as an outpatient include both reluctance to exercise in a group setting and to travel

a distance to the site. It seems that participation in Phase II is affected by many variables and does not necessarily correlate to the individual's needs at discharge.

A review of the literature reveals that rehabilitation of the individual with a myocardial infarction has received considerable attention. Studies have been designed to determine perceived knowledge needs by both patient and nurse, teaching methods to meet the needs, and the timing of education with the patient and his family. The effects of inpatient education of the individual with a myocardial infarction and his family has been closely examined. However, there is limited evidence regarding the effects of outpatient education with individuals who have had myocardial infarctions.

These are important concerns for nursing. Considering the number of Americans surviving myocardial infarctions and the nurse's role as both coordinator and educator in the rehabilitation process, this importance cannot be minimized. Nurses have an ethical and legal responsibility to educate patients for self-care. It is necessary for nurses to evaluate their efforts in educating patients. Andragogy, the theory of adult learning states that people become ready to learn

something when they experience a need to learn it in order to cope more satisfyingly with real-life tasks or problems (Knowles, 1980). During hospitalization a patient's needs are met by the health care providers and the patient may not even experience an awareness of self care needs. Therefore the need to learn is more evident after discharge when the patient and family are responsible for self care. For optimal learning and lifestyle modification, teaching should be continued in an outpatient setting.

#### Purpose

The purpose of this study was to determine if individuals who have had a myocardial infarction and who attended a cardiac rehabilitation education program post discharge had a greater increase in knowledge and less anxiety as compared to those who did not attend such a program. If individuals who attended the program did have a greater level of knowledge and less anxiety than those who did not attend the program, then nursing's efforts in educating the myocardial infarction patient should be redirected to this time in the rehabilitation process. The study was a partial replication of a previous study of the effects of a structured inpatient educational program (Raleigh & Odtohan, 1987). It added to knowledge in

nursing regarding patient education. The focus was on the relationship between continued education in an outpatient setting and knowledge and anxiety experienced by the myocardial infarction patient.

CHAPTER TWO  
LITERATURE AND THEORY

Literature Review

Studies regarding cardiac rehabilitation patient education outcomes have revealed conflicting results. The use of an experimental design has been rare, most studies have been descriptive, thus decreasing their strength to support a causal relationship. Studies have examined a variety of instructional methods to increase knowledge of patients with myocardial infarctions.

Scalzi, Burke and Greenland (1980) conducted a two year follow-up study evaluating an inpatient educational program with 39 myocardial infarction patients and their spouses. A quasi-experimental time-series design was used to evaluate differences in learning and compliance. Comparison of pretest and posttest scores of the participants in the inpatient educational program demonstrated limited retention of information provided

during the acute phase of illness. However, the number of questions received from patients in the six weeks after discharge raised the issue as to whether that might be the optimal time when patients and families are ready to learn.

Rahe, Scalzi, and Shine (1975) utilized a pretest-posttest design with a convenience sample of 24 patients. They were also unable to demonstrate an increase in knowledge with a planned inpatient teaching program. Results indicated that patients demonstrated significant learning only in regard to their expectations about returning home. The instrument utilized had been designed to test knowledge and identify misconceptions. The reliability of the instrument was not documented.

In contrast, Raleigh and Odtohan (1987) were able to support the effectiveness of a structured inpatient education program for patients with myocardial infarction. Using an experimental design, eighteen subjects were randomly assigned to an educational program and a control group. The educational program was designed to reduce anxiety and increase the return to normal activity level post discharge.

Pozen et al. (1977) also found positive effects of a nurse rehabilitator's impact on patients with myocardial



infarction. Results indicated that teaching was effective in increasing return to work rate ( $p < .05$ ) and decreasing smoking ( $p < .05$ ) in a randomized trial with 102 patients with myocardial infarction. However, findings also showed that this increased knowledge was not maintained at six months after discharge. It was suggested that an early increase in knowledge encourages patients to assume responsibility for their own health resulting in a higher level of post discharge performance. It was postulated that poor long term knowledge retention supports the need for outpatient teaching methods.

Other studies have focused on content to be included in a cardiac rehabilitation education program. Bilodeau and Hackett (1971) identified a number of concerns expressed by a group of patients with myocardial infarctions after discharge from the hospital. A very small sample of five males identified issues most frequently raised by patients with myocardial infarctions post discharge. Concerns related to illness, medicines, risk factors and personal health status. Karlik and Yarcheski (1987) interviewed 30 patients both during the acute phase and again post discharge regarding the patient's perceived areas of concern. Their results supported previous findings and expanded to include the

nurses' perception of patient learning needs. Patients continued to rate risk factor information as the most important area for education.

A study by Sivarajan, Newton, Almes, Kempf, Mansfield, and Bruce (1983) examined a group of individuals who had myocardial infarction and returned post discharge for group teaching and counseling. An experimental design with a sample size of 258 patients was utilized to investigate compliance. Smoking cessation, dietary modification or weight loss were the determinants of compliance. Knowledge and anxiety which are two variables that affect compliance were not examined. Findings did not demonstrate compliance. The method of group education and counseling in modifying individual risk factors was questioned. The approach utilized in teaching and counseling was educational. Acquisition of knowledge is only one of the many factors that influence behavior change.

Granger (1988) suggested that the use of telephone communication with the individual who has had a myocardial infarction immediately after discharge from the hospital might be one method to decrease anxiety and fear. Garding, Kerr, and Bay (1988) utilized a pretest-posttest design in evaluation of a telephone teaching program for

myocardial infarction patients six to eight weeks after discharge. With a sample size of 111 patients, results indicated support for such a program. It was shown to be effective in increasing knowledge relative to disease, self-care, and the therapeutic regimen.

The literature reviewed addressed the rehabilitation of the individual with a myocardial infarction in regard to education. Valuable knowledge has been gained regarding cardiac rehabilitation but many questions remain. The literature suggests the use of outpatient educational programs but indicates a lack of research in support of this method for patient education of the individual with a myocardial infarction.

#### Theoretical framework

The goal of cardiac rehabilitation is congruent with Orem's theory of self-care. The aim is for the patient to regain a normal or near normal state of health and to stabilize, control, or minimize the effects of chronic poor health or disability. There is minimal time in the hospital to work with this acutely ill patient population. The clients are in a stressful situation with the new diagnosis which necessitates lifestyle modification and life with a chronic illness. If nursing is unable to prepare the clients during their hospital stay, it is

unlikely that they will be able to resume self-care behaviors and make appropriate decisions regarding their health after discharge.

Orem's theory of self-care provides a reference for nurses to assist patients in meeting their self care needs. Basic to Orem's Self Care Theory, is the concept that people function and maintain life, health, and well-being by caring for themselves (Orem, 1985). Her concept of the goal of nursing is to render the client or members of the family capable of meeting the self-care needs of the patient. This practice oriented theory is applicable in many settings, especially those involving a chronic state. In cardiac rehabilitation, nursing efforts are directed toward providing sufficient knowledge for the patient to make personal health decisions. This is consistent with the supportive-educative system in Orem's theory, in which the nurse's role is to help the client in overcoming self-care limitation (Orem, 1985).

The philosophy of cardiac rehabilitation is that individuals who have had a myocardial infarction can and should return to normal independent and productive living after experiencing the acute event. During the rehabilitation process continued education can increase knowledge and decrease anxiety which can positively affect

self care by the patient with a myocardial infarction. Attending an education class series will increase knowledge and decrease anxiety which will facilitate self care.

#### Hypotheses

1. Myocardial infarction patients who attend a cardiac rehabilitation education program in an outpatient setting have a greater level of knowledge related to disease, self-care and the therapeutic regimen than those who do not attend such a program.
2. Myocardial infarction patients who attend a cardiac rehabilitation education program in an outpatient setting have a lower level of anxiety than those who do not attend such a program.

#### Definition of terms

Concepts identified within the framework for the proposed study include the individual with a myocardial infarction, cardiac rehabilitation educational program, outpatient setting, knowledge, and anxiety. The individual who has sustained an acute myocardial infarction or "heart attack", has had actual damage to the heart muscle, usually the result of myocardial ischemia following occlusion of a coronary artery. The diagnosis is confirmed by elevated enzymes and/or changes in the

electrocardiogram.

The cardiac rehabilitation educational program provides continuation of the teaching learning process regarding cardiovascular health and risk factor modification. The program consists of the six class series, "Moving Toward a Heart Healthy Life". It involves a group setting with class size limited to twenty participants. Individuals enter the program within two weeks of discharge. It is both educational and supportive in nature.

The outpatient setting is an environment the client enters for further education after discharge. The actual classes are held in classrooms within the hospital. The one hour long classes are limited to a group size of twenty participants. Spouses or significant others are encouraged to attend along with the patient.

Knowledge is the information base the individual possesses which affects his self-care practices regarding health. It will be measured with a cognitive test which was developed by Raleigh and Odtohan (1987) for their study regarding an inpatient education program.

Anxiety is a psychological state identified by persistent negative symptoms such as irritability, tension, hostility, and excessive fatigue (Taber, 1981).

Spielberger (1983) describes state anxiety (S-Anxiety) as a palpable reaction taking place at a given time and level of intensity. Anxiety will be measured at both discharge and at five weeks after discharge using Spielberger's State Anxiety Inventory (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983).

## CHAPTER THREE

### METHODOLOGY

#### Research Design

An experimental design would have been preferable to identify a causal relationship between the independent variable of continued education and the dependent variables of knowledge and anxiety. However there were constraints to this method. For both ethical and practical reasons it was not feasible to randomize the experimental treatment. Therefore a quasi-experimental design with a nonequivalent comparison group was utilized. The experimental group consisted of those individuals who attended the outpatient cardiac rehabilitation educational program. The comparison group consisted of those who did not attend any outpatient cardiac rehabilitation services. A pretest-posttest measure was employed.



### Sample and Setting

Individuals who were admitted to a 529 bed metropolitan tertiary care facility with a confirmed diagnosis of myocardial infarction and met the additional criteria for selection were asked to participate in the study. A nonprobability convenience sample was used.

While in the hospital, the clients experienced nearly similar hospitalization progression and standardized rehabilitative instruction. They participated in the Phase I Cardiac Rehabilitation Program of the hospital and had the same objectives utilized in their Phase I education. During Phase I, cardiac rehabilitation nurses met with clients on an individual basis within the first few days of admission and throughout their hospitalization. Individualized instruction and resource literature regarding diet, exercise and activity, and risk factor modification were provided. Clients followed an established exercise program as tolerated. They received information from their physicians as well. Hospitalization was generally five to eight days for this patient population with progression from intensive care to intermediate care to medical-surgical care. Subjects were selected according to the following criteria:

- 1) first-time myocardial infarction
- 2) able to read and write English
- 3) oriented to person, place, and time
- 4) discharged without surgical intervention
- 5) no previous participation in a cardiac rehabilitation program
- 6) not a health care worker.

The use of antithrombolytic agents such as streptokinase or tissue plasminogen activator and/or the procedure of percutaneous transluminal coronary angioplasty were not limiting factors for sample selection.

Anticipated sample size was 20 clients in the experimental group who returned for the outpatient educational program and 20 clients in the comparison group who did not return to the hospital for outpatient cardiac rehabilitation services. Clients who met the previously identified criteria were asked to participate in the study. Those who elected to attend the educational program comprised the experimental group. Among those included in the comparison group were individuals prohibited from attending the outpatient program due to distance to travel. In most instances determination of group membership was not known until the day of discharge when arrangements were made for those who returned to the

outpatient program.

### Instruments

Demographic data form. An instrument to obtain demographic information was utilized. (Appendix A). Variables of interest included age, educational level, and occupation. Additional items were added to measure motivation (Appendix B). There were eight statements which related to health care behaviors such as eating a well-balanced diet, following medical advice and having recommended physical exams (Champion, 1984). Subjects were asked to respond as to how they ususally felt according to a five point Likert scale. Response options include the following: strongly disagree, disagree, neutral, agree, and strongly agree. The options are assigned values of 1, 2, 3, 4, and 5 respectively. The total possible score ranges from 8 to 40. The motivation section yielded a Cronbach's alpha reliability coefficient of .62.

Cognitive knowledge test. The cognitive knowledge test (Appendix C) was developed and utilized by Raleigh and Odtohan (1987) to assess knowledge following completion of a structured inpatient education program for patients with myocardial infarctions. The instrument was used with permission of the author (Raleigh, E.). The

test contains 37 items (fifteen true-false, seven multiple choice, and 15 fill in the blank). It tests general knowledge about heart disease, risk factors, rehabilitation, medications, diet and response to symptoms. Scores range from 0 to 37. Each correct response is worth one point. Content validity was previously determined by a panel of experts. Internal consistency was determined by Raleigh and Odtohan (1987) in a pilot study of ten patients with myocardial infarction (Cronbach alpha, .77; Spearman-Brown, .86).

Minor revisions of the instrument were made for the purpose of this study. Using SPSSX, the reliability index for internal consistency of the cognitive test yielded a coefficient of .70 (Kuder-Richardson 20).

State Anxiety Inventory Form. The State Inventory of the State-Trait Anxiety Inventory Form (STAI) developed by Spielberger, et al. (1983) (Appendix D) was used to measure anxiety. It consists of 20 short statements regarding present feelings which subjects respond to on a Likert type scale. Response options include the following: not at all, somewhat, moderately so, and very much so. The options are assigned values of 1, 2, 3, and 4 respectively. The total possible score ranges from 20 to 80. A score is determined by adding across items.

Reliability of the STAI has been tested previously with undergraduate college students. Previous measures of internal consistency alpha coefficients ranged from .83 to .92. Internal consistency coefficients are higher for the STAI scale when it is given under conditions of psychological stress. The reliability coefficient of the State Anxiety Inventory in this study was computed as .90 on the pretest and .65 on the posttest (Cronbach alpha).

#### Procedure

Names of potential subjects who met the criteria were obtained from the Phase I cardiac rehabilitation nurse. Within 48 hours prior to discharge, potential subjects were met by the principal investigator in their hospital rooms. After being given a verbal explanation of the study, they were asked to participate. Informed consent was requested to protect human rights and assure confidentiality. (Appendix E). The first twenty subjects who elected to attend the educational program composed the experimental group and the comparison group was composed of the first twenty subjects who elected not to attend the program. The minimal risk involved was related to the inconvenience of completing the questionnaires and any possible anxiety it may cause. The educational experience which occurred during Phase I was not altered in any way.

The patients were also informed of the benefits of the study.

After written consent was obtained, the subjects were asked to complete the demographic data, knowledge and State Anxiety Inventory questionnaires. The investigator was present to answer possible questions. Generally within two weeks after discharge the experimental group began the outpatient cardiac rehabilitation educational program. The comparison group did not return to the hospital for any outpatient cardiac rehabilitation. At 5 weeks after discharge the knowledge and state anxiety forms were mailed to both groups requesting that they complete the forms and mail them back to the investigator (Appendix F). If the forms had not been received by the end of the sixth week after discharge, follow up phone calls were made. If the forms still had not been received by the end of the seventh week after discharge, a reminder post card was sent (Appendix G). At the completion of the study a copy of the results was to be mailed to those participants who expressed an interest in receiving them.

#### Experimental Treatment

The educational program, "Moving Toward a Heart Healthy Life", was developed by the investigator (Appendix H). It consists of two classes a week, each an

hour long for three weeks. The program is based on information obtained through a literature review and a survey of 60 previous patients regarding their perceived needs post discharge. The group classes were held in a classroom within the hospital. Class size tended to vary depending on the number of clients involved in the outpatient program and ranged from one to twenty individuals per class. Spouses and significant others were encouraged to attend along with the patient. Participants were seated around a table to encourage discussion.

The format included both lecture and group discussion with opportunity for questions. Audiovisual aids such as videotapes and slides were incorporated to provide content and variety. Five of the classes were led by a cardiac rehabilitation nurse with a dietitian teaching the diet class. Clients could enter the series at any point depending on when they were discharged. They generally began the program within two weeks of discharge. They did not have to begin with class number one but they continued through the series until they had attended all six classes.

The content of the six classes was as follows.

1. Facts about your heart and risk factors for heart

disease consisted of a slide presentation which provided information about the heart and risk factors for cardiovascular disease.

2. Making lifestyle changes involved viewing the videotape, "For a Change". Group discussion involving problem solving for lifestyle modification followed. 3.

3. Emotional adjustments to heart disease involved viewing the videotape, "After a Heart Attack-Emotional Adjustments". Group discussion occurred regarding feelings related to changes in relationships as a result of the diagnosis of cardiac disease.

4. Activity and exercise included lecture and discussion regarding activity and exercise in relation to cardiac disease.

5. Diet included a slide presentation with a question and answer period regarding the heart healthy diet.

6. Stress involved viewing the videotape, "Taking it in Stride". A lecture and discussion regarding stress and relaxation techniques followed.



## CHAPTER FOUR

### RESULTS

#### Characteristics of Subjects

Identification of potential subjects for the study was made by the Phase I cardiac rehabilitation nurses over an eight month period. Sixty-three candidates were first time myocardial infarction patients and met the criteria for this study. Two males refused to participate in the study. One man was experiencing denial regarding his heart disease and the other stated that he was not interested in participating.

The sixty-one remaining candidates consented to participate in the study. Nine subjects were excluded from the study because they did not return their posttests. Of these nine, one individual went to live with a son whose address was not known, one individual went to Florida for the winter, and two individuals claimed they had mailed their tests back and were not interested in

completing another form. One individual expired a few days after discharge. The other four subjects could not be reached for comment. Of the remaining 52 subjects, twelve returned for the outpatient exercise only and did not attend the educational program. This excluded them from either group and they were not included in the study.

Forty subjects met the criteria and completed participation in the study. Seventeen individuals attended the educational program and composed the experimental group. Twenty-three subjects were in the comparison group.

The ethnic background of the sample was predominantly white. One participant was black and one subject specified "other". Thirty of the participants were male and ten of the subjects were female. Age of the participants ranged from 29 to 74 years of age. The experimental group had a higher percentage of males and a younger mean age as compared to the comparison group. The age range for the comparison group was 41 to 72 years of age with a mean age of 55.22. The age range for the experimental group was 29 to 74 years of age with a mean age of 51.88 years.

To evaluate equivalency between the two groups in relation to age and motivation, a t-test was performed.

The results do not support a significant difference between the two groups in relation to either age or motivation ( $p = .05$ ). Table 1 illustrates the results.

Table 1

Sample Distribution by Age and Motivation

Characteristic	Group				
	Experimental (n=17)		Comparison (n=23)		t
	M	SD	M	SD	
Age (years)	51.8	13.3	55.2	9.9	.45*
Motivation	25.06	4.76	24.04	5.90	.30*

\* = NS, df = 38

Table 2 illustrates the sample distribution by level of education.

Table 2

Sample Distribution by Level of Education

Level of Education	Group	
	Experimental (n=17)	Comparison (n=23)
High School or less	11	13
Beyond High School	6	10

CHI-SQUARE = 0.038\*,  $p = 0.05$

\* = NS, df = 1

Although the educational background was varied, the majority of subjects were fairly well educated. Level of education was compared through the use of the statistical test, Chi-square.

The two groups also did not differ on the demographic variables of sex or occupation. Table 3 illustrates this comparison.

Table 3

Sample Distribution by Sex and Occupation

	Group		
	Experimental n= 17	Comparison n=23	Total n=40
<u>Sex</u>			
Males	14	16	30
Females	3	7	10
<u>Occupational Categories</u>			
Professionals	1	3	4
Business executives	3	3	6
Skilled or unskilled workers	9	5	14
Business owners	2	4	6
Retired	2	8	10

The mean scores and the standard deviations for both groups on the state anxiety and cognitive knowledge pretest and posttest are shown in Table 4.

Table 4

State Anxiety and Cognitive Knowledge Scores

	Group			
	Experimental (n=17)		Comparison (n=23)	
	M	SD	M	SD
<u>State Anxiety</u>				
Pretest	45.00	9.14	44.00	4.17
Posttest				
Obtained	44.24	4.99	44.52	5.61
Adjusted	45.28		43.75	
<u>Cognitive Knowledge</u>				
Pretest	28.94	5.61	29.17	7.40
Posttest				
Obtained	33.29	4.10	31.83	5.37
Adjusted	34.17		31.18	

There was very little contrast between the groups in relation to the state anxiety scores. There was more variation with the cognitive knowledge scores. With a total possible score on the cognitive knowledge test of 37, it appears that the subjects were quite knowledgeable in respect to the reported mean scores. The questions which were most often incorrect or not completed, were the fill in the blank questions regarding medication and diet. In addition to the descriptive statistics reported in Table 4, the the adjusted means for both the state anxiety

and cognitive knowledge scores are also presented. These values were computed through multiple classification analysis of the analysis of covariance variables. The adjusted means are mean values which take into account the treatment effects of the covariate pretests.

#### Analysis of the Research Hypotheses

Analysis of covariance (ANCOVA) was used to analyze the first hypothesis: Myocardial infarction patients who attend a cardiac rehabilitation education program in an outpatient setting will have a greater level of knowledge related to disease, self-care and the therapeutic regimen than those who do not attend such a program. ANCOVA was used to compare the posttest cognitive knowledge scores of both groups. The pretest cognitive knowledge score was used as a covariate. The hypothesis was not supported as illustrated in Table 5.

Analysis of covariance (ANCOVA) was also used to test the second hypothesis: Myocardial infarction patients who attend a cardiac rehabilitation education program in an outpatient setting will have a lower level of anxiety as compared to those who do not attend such a program. The state anxiety inventory form was utilized as both a pretest and posttest. There are many factors which affect the psychological state of anxiety including fear of the

unknown and perception of severity of illness. It is assumed that many of the same factors which affect anxiety at discharge are present at the time of the posttest, consequently the pretest state anxiety score was used as a covariate. The second hypothesis was not supported as illustrated in Table 6.

Table 5

Analysis of Covariance for Posttest Cognitive Knowledge Scores

Source of Variation	df	MS	F	p
Pretest Covariate	1	46.969	2.147	.022
Main effects Group	1	11.334	.518	.157
Residual	37	10.936		
Total	39	11.870		

Table 6

Analysis of Covariance on the State Anxiety Inventory Scores

Source of Variation	df	MS	F	p
Pretest Covariate	1	56.319	.990	.084
Main effects Group	1	16.033	.284	.229
Residual	37	28.448		
Total	39	28.845		

## CHAPTER FIVE

### DISCUSSION AND IMPLICATIONS FOR NURSING PRACTICE

#### Discussion

This research study attempted to support the effectiveness of continued education in the outpatient setting for individuals with myocardial infarction. Although the mean score on the cognitive knowledge test for individuals who attended the educational program was higher than the mean score for those who did not attend, there was not a statistical significance to support the hypothesis.

Orem's theory of self-care provided the conceptual framework for this study. The supportive-educative component impacts the client's ability to manage his or her own care. Clients who have a higher level of knowledge regarding self care and the therapeutic regimen are better able to assume responsibility for their own health. It is assumed that this results in a higher level



of performance which is congruent with the goal of cardiac rehabilitation.

Self care is a major requirement for optimal rehabilitation. Nursing's education of the patient with myocardial infarction affects the ability for self care. With decreased lengths of stay and cost containment issues, education of the patient with a myocardial infarction during hospitalization is a difficult task. Nursing must continue to explore alternative methods for educating this client population.

The fact that there was not a statistically significant decrease in anxiety should be further examined. Because of the quasi-experimental design and nonequivalent comparison group, it is likely that the sample was not reflective of the entire population. Although the groups appear homogeneous in relation to demographic characteristics, other differences were not measured. The fact that individuals chose whether to attend the outpatient education program represents self-selection in the experimental group. Factors which affected the decision to attend were not measured. Some individuals were urged by their physicians to attend the outpatient cardiac rehabilitation exercise program so that their activity tolerance and condition could be monitored

more closely. If their condition was more unstable or symptomatic, their anxiety levels would probably have been higher than those who were asymptomatic and stable. These variables would certainly affect the learning process as well. In addition, the mean age of the experimental group was slightly younger than that of the comparison group. Learning to live with the chronicity of cardiovascular disease at a younger age could affect anxiety and learning in this setting. In summary it is believed that those who elected to attend the program may have differed from the general population in various aspects which were not examined or measured.

#### Further limitations to the study

The small sample size was a limitation to the study. The subjects were quite homogeneous as a group with the majority being middle class Caucasian. A larger group with a varied ethnic background may have produced different results. The time frame may also have been a limitation. Data collection took nearly eight months. During that time frame there were some unavoidable personnel changes. This could have affected the consistency of education the patients received in the hospital. Even though random sampling was not deemed feasible for ethical reasons, it would have provided

strength to the study.

The number of individuals who decided not to attend the educational program should be addressed as well. Eleven individuals returned for the exercise and not the education. Cost of the program was identified as a prohibitive factor by some individuals. Others denied a need for further information. Still others identified a time constraint during the post discharge phase. This was especially true if transportation was an issue. Patients were informed of the classes during hospitalization and at discharge. They were also provided with a program brochure. However, a few patients even denied an awareness that the classes existed.

#### Implications for Nursing Practice

Even though neither hypothesis was supported, there are still implications for nursing practice. The patient with a myocardial infarction should be thoroughly assessed regarding learning needs for self care. Since there are barriers to the teaching/learning process during hospitalization, alternative methods need to be investigated. Nurses ought to identify those individuals who are likely to return for the outpatient program. For these individuals education should be prioritized during hospitalization with issues addressed more

comprehensively in the outpatient phase. Those individuals who are not likely to attend the outpatient program should receive more information and attention during the hospital period. Other methods such as home videos and telephone follow-up should receive further evaluation. In addition, nurses need to collaborate between the inpatient phase, the outpatient phase and the community to better educate the patient with myocardial infarction for self care.

There needs to be a heightened awareness of educating the myocardial infarction patient. With current trends in health toward cost containment, decreasing lengths of stay, and attention on outpatient services, these educational efforts by nursing deserve further study. The benefits of attending the outpatient educational program although not supported as significant statistically, need to be communicated to physicians, other health care personnel, patients, and families.

#### Recommendations for Future Research

Replication of this study should be done with a larger sample size. Patients who have had coronary artery bypass surgery should also be included in the sample since they also attend the cardiac rehabilitation education program. The present study could also be repeated with

another measurement farther along in the rehabilitation process, perhaps six months post myocardial infarction, to see if there are changes over time in levels of knowledge and anxiety. It would be interesting to correlate the information obtained in this study with the client's perception of preparedness. In addition, a measurement of compliance could be carried out and correlated with education and coping. Since anxiety was not found to be statistically significant, perhaps another variable such as coping or adjustment should be examined.

#### Conclusion

Heart disease affects the lives of many Americans. Since knowledge of self-care is important to the adjustment to the disease, nursing's efforts should be focused on education in the rehabilitation of the patient with myocardial infarction. Various methods have been studied with inconsistent results. This research attempted to support the significance of continued education of the myocardial infarction patient in the outpatient setting. Nursing must strive to educate myocardial infarction patients for self care in the rehabilitation process.

**APPENDIX**

APPENDIX A

DEMOGRAPHIC DATA FORM

The following questions describe general things about yourself. Please answer all the questions to the best of your ability. There are no right or wrong answers. All information will be kept confidential.

1. Ethnic background: (Please check (X) the appropriate category.)

White \_\_\_\_ 1

Black \_\_\_\_ 4

Oriental \_\_\_\_ 2

Mexican-American \_\_\_\_ 5

Native American \_\_\_\_ 3

Other \_\_\_\_ 6

2. Your educational level: (Please check (X) highest grade completed.)

1 \_\_\_\_ fewer than seven years of school (grades 1-6)

2 \_\_\_\_ junior high school (grades 7-9)

3 \_\_\_\_ partial high school (grades 10-11)

4 \_\_\_\_ high school (completed 12th grade)

5 \_\_\_\_ trade school completed

6 \_\_\_\_ partial college education (3 years or less)

7 \_\_\_\_ college education (4 years)

8 \_\_\_\_ beyond 4 years of college

3. What is your current occupation (check (X) one)?

1 \_\_\_\_ housewife

2 \_\_\_\_ clerical

3 \_\_\_\_ professional

4 \_\_\_\_ business executive

5 \_\_\_\_ skilled worker

6 \_\_\_\_ semiskilled or unskilled worker

7 \_\_\_\_ owner of business establishment

8 \_\_\_\_ retired

9 \_\_\_\_ currently unemployed, but looking for work

10 \_\_\_\_ other (please specify) \_\_\_\_\_

4. If you are working outside the home, are you working:  
(Please check one)

- 1  full time (40 hours or more per week)
- 2  part time (less than 40 hours/week)

5. How would you rate the stress associated with your job  
(check X one)?

- 4  high stress
- 3  moderate stress
- 2  low stress
- 1  no stress

6. Below is a list of things which happen in many families.  
Which of these have you experienced in your family  
during the past twelve months? Please check (X) all  
that apply.

- 1  menopause
- 2  pregnancy
- 3  an addition in the household
- 4  retirement ( your retirement  your spouse's)
- 5  moving
- 6  marriage
- 7  divorce or separation from your spouse
- 8  major sickness or injury in your family other  
than your heart problem
- 9  death of a close friend or family member
- 10  children left home
- 11  got laid off or fired from work
- 12  concern over aged parents or inlaws
- 13  change in work hours or responsibility
- 14  other

7. Is there anything about yourself not covered in this  
questionnaire that you would like to tell the  
investigator?

Yes  No

If yes, please describe \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

YOU HAVE COMPLETED THIS QUESTIONNAIRE. PLEASE CHECK AND  
MAKE SURE YOU HAVE ANSWERED ALL QUESTIONS.

**THANK YOU !!!!!!!**



APPENDIX B

PATIENT QUESTIONNAIRE

Please rate the following statements according to how you usually feel. Circle the number which corresponds to your usual beliefs according to the following scale:

Strongly Agree-Agree- Neutral- Disagree-Strongly Disagree  
5 4 3 2 1

1. I eat a well-balanced diet.  
5 4 3 2 1
2. I always follow medical orders because I believe they will benefit my state of health.  
5 4 3 2 1
3. I frequently do things to improve my health.  
5 4 3 2 1
4. I take vitamins when I don't eat good meals.  
5 4 3 2 1
5. I search for new information related to my health.  
5 4 3 2 1
6. I have the recommended yearly physical exams in addition to visits related to illness.  
5 4 3 2 1
7. I have the recommended periodic dental exams in addition to visits for a specific problem.  
5 4 3 2 1
8. I exercise regularly - at least three times a week.  
5 4 3 2 1

**PLEASE NOTE**

**Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.**

**Appendix C 41-45  
Appendix D 46**

**University Microfilms International**

---

**APPENDIX E**  
**PATIENT CONSENT FORM**

I am willing to participate in a research study being conducted by Janice Hodges, RN BSN, concerning the effect of education on the rehabilitation of an individual with a heart attack. This study has been approved by the Human Subjects Board of Grand Valley State University and the Human Rights Committee of Butterworth Hospital.

I understand that before discharge I will be asked to fill out three questionnaires. They will provide information regarding my understanding of my heart health after having had a heart attack, my mood, and some general information about myself as well. They will be given to me by the investigator and will take about 40 minutes to complete.

I understand that five weeks after my discharge I will receive two similar questionnaires in the mail. They will take about 30 minutes to complete. A self-addressed stamped envelope will be included for me to return them to the investigator. There are no extra costs for participating in the study. The risk involved is minimal and is related to the inconvenience of filling out the questionnaires. I understand that I am free to withdraw

from this study at any time without any effect on my medical care. I may also ask questions at any time. I may contact the investigator at 774-1588 between 9 AM and 5 PM Monday through Friday for any questions. Should I have any questions regarding my rights as a patient, I may call the Human Rights Committee representative at 774-1299.

I have been assured that my confidentiality will be preserved and that my name will not be revealed in any reports or publications resulting from this study. A copy of this consent form will be provided to me.

The possible benefits of participating in this study are that I will be helping to add to the information available about people with heart disease. The goal of the study is to improve care to patients with heart problems. A copy of the results will be mailed to me if I indicate my interest below.

I agree at this time to participate in this study as signified below.

Patient Signature: \_\_\_\_\_ Date \_\_\_\_\_

Signature of Witness: \_\_\_\_\_ Date \_\_\_\_\_

I would like to be informed of the results of this study.

Yes \_\_\_\_\_ No \_\_\_\_\_

VERBAL SCRIPT TO OBTAIN INFORMED CONSENT

Hello Mr./Mrs. \_\_\_\_\_

My name is Jan Hodges. I am a graduate student in nursing at Grand Valley State University.

I am conducting a study involving people who have had heart attacks. I am interested in their knowledge and feelings about heart disease. My goal is to improve care to patients with heart problems.

I would like your help in this study. It would involve completing four questionnaires now which will take about forty minutes. Five weeks after discharge you will receive two more questionnaires in the mail which will take about thirty minutes to complete. A self addressed stamped envelope will be provided for you to return the questionnaires to me.

Your participation in this study would be completely voluntary and in no way affects your care either in the hospital or the doctor's office. There is no extra cost to you.

The risk involved is minimal and is related to the inconvenience of filling out the questionnaires.

You would be free to withdraw from this study at any time without any effect on your medical care. You may ask questions at any time as well. You can reach me at 774-1588 from 9AM to 5PM Monday through Friday. Any information you provide will be considered confidential and your name will not be used.

This study has been approved by the Human Subjects Board of Grand Valley State University and the Human Rights Committee of Butterworth Hospital.

By participating in this study, you will be adding to information known about people with heart disease.

Your signature on the consent form shows that this study and your participation has been explained to you and that you freely consent to participate. A copy of the results of this study will be provided to you if you so desire.

Do you have any questions about the study?  
Would you be interested in participating?

APPENDIX F

Date

Mr. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dear Mr. \_\_\_\_\_,

As you recall, you agreed to participate in my research study while you were a patient at Butterworth Hospital. To complete your participation in the study, I am asking you to fill out the final two questionnaires which are enclosed. They should require about thirty minutes to complete. A self addressed stamped envelope is provided for you to return the questionnaires to me. Please complete and return them at your earliest convenience.

I would like to thank you for your cooperation and willingness to participate in this study. It will add to the information known about people with heart disease. If you had indicated an interest in receiving the results, a copy will be sent to you when it is available. I look forward to receiving your completed questionnaires soon.

Sincerely,

Jan Hodges RN, BSN

APPENDIX G

Date

Dear Mr. \_\_\_\_\_,

This is a reminder that your completed questionnaires have not yet been received. I realize that this is a busy time for you but the information you provide is valuable to the completion of this research study. The knowledge gained from this study will add to the information regarding people with heart disease. I look forward to receiving your completed questionnaires soon. Thank you for your participation.

Sincerely,

Jan Hodges RN, BSN

APPENDIX H  
COURSE OBJECTIVES

At the end of the class Facts about the Heart and Risk Factors for Cardiovascular Disease, the client will be able to:

1. identify the components of the cardiovascular system
2. describe the function of the heart
3. state the process of coronary artery disease
4. define angina
5. state which medications he/she is taking to prevent angina
6. state the difference between angina and heart attack and appropriate action to take for each
7. identify risk factors for heart disease

At the end of the class Lifestyle Changes, the client will be able to:

1. identify behavior changing techniques for risk factors
2. state problem solving process and its prerequisites

At the end of the class Emotional Adjustments, the client will be able to:

1. identify changes in relationships that have occurred since the cardiovascular event
2. verbalize the above changes

At the end of the Activity class, the client will be able to:

1. state the effect of physical activity on the heart
2. verbalize the difference between aerobic and anaerobic exercise
3. state the potential benefits of exercise
4. state the components of a regular exercise program
5. list signs and symptoms of activity intolerance
6. state the effect of individual medications during exercise
7. state the body's normal response to sexual activity

At the end of the Diet class, the client will be able to:

1. identify risk factors affected by diet modifications
2. state the function of lipids in the body
3. define saturated fats and list sources
4. define polyunsaturated fats and list sources
5. define monosaturated fats and list sources

6. identify foods to be used in a 300 mg. cholesterol/low saturated fat diet, and foods to be limited or avoided

At the end of the Stress class, the client will be able to:

1. define stress
2. identify the cardiovascular response to stress
3. identify stressors in own personal life
4. identify appropriate methods for coping with stress



## REFERENCES

### LIST OF REFERENCES

- American Heart Association. (1988). 1988 Heart Facts. Dallas, TX: National Center.
- Bilodeau, C. & Hackett, T. (1971). Issues raised in a group setting by patients recovering from myocardial infarction. American Journal of Psychiatry, 128, (1), 105-109.
- Briody, M. (1984). The role of the nurse in modification of cardiac risk factors. Nursing Clinics of North America, 19, 387-395.
- Budan, L. (1983). Cardiac patient learning in the hospital setting. Focus on Critical Care, 10, (5), 16-20.
- Burke, L. (1981). Learning and retention in the acute care setting. Critical Care Quarterly, 10, (5), 16-20.
- Champion, V. (1984). Instrument development for health belief model constructs. Advances in Nursing Science, 6, (3), 73-85.
- Christman, N., McConnell, E., Pfeiffer, C., Webster, K., Schmitt, M. and Ries, J. (1988). Uncertainty, coping, and distress following myocardial infarction: transition from hospital to home. Research in Nursing and Health, 11, 71-82.
- Crawshaw, J. (1974). Community rehabilitation after acute myocardial infarction. Heart and Lung, 3, 258-262.
- Garding, B., Kerr, J., & Bay, K. (1988). Effectiveness of a program of information and support for myocardial infarction patients recovering at home. Heart and Lung, 17, 355-361.
- Granger, J.W. (1988). Full recovery from myocardial infarctions: psychosocial factors. Heart and Lung, 17, 600-9.
- Hentinen, M. (1986). Teaching and adaptation of patients with myocardial infarction. International Journal of Nursing Studies, 23, (2), 125-138.

- Karlik, B. & Yarcheski, A. (1987). Learning needs of cardiac patients: a partial replication study. Heart and Lung, 16, 544-551.
- Linde, B. and Janz, N. (1979). Effect of a teaching program on knowledge and compliance of cardiac patients. Nursing Research, 28, 282-286.
- McGlashen, R. (1988). Strategies for rebuilding self-esteem for the cardiac patient. Dimensions in Critical Care Nursing, 7, (1), 28-38.
- Miller, P., Wikoff, R., McMahon, M., Garrett, M., & Ringel, K. (1988). Influence of a nursing intervention on regimen adherence and societal adjustments postmyocardial infarction. Nursing Research, 37, 297-302.
- Mills, G., Barnes, R., Rodell, D., and Terry, L. (1985). An evaluation of an inpatient cardiac patient/family education program. Heart and Lung, 14, 400-406.
- Moynihan, M. (1984). Assessing the educational needs of post-myocardial infarction patients. Nursing Clinics of North America, 19, 441-447.
- O'Malley, P. and Menke, E. (1988). Relationship of hope and stress after myocardial infarction. Heart and Lung, 17, 184-190.
- Ott, C., Sivarajan, E., Newton, K., Almes, M., Bruice, R., Bergner, M., & Gilson, B. (1983). A controlled randomized study of early cardiac rehabilitation: the sickness impact profile as an assessment tool. Heart and Lung, 12, 162-169.
- Owens, J., McCann, C., & Hutelmyer, C. (1978). Cardiac rehabilitation: a patient education program. Nursing Research, 27, 148-150.
- Pinneo, R. (1984). Living with coronary artery disease: the nurses's role. Nursing Clinics of North America, 19, 459-466.
- Pozen, M., Stechmiller, J., Harris, W., Smith, S., Fried, D. & Voight, G. (1977). A nurse rehabilitator's impact on patients with myocardial infarction. Medical Care, 15, (10), 83-837.

- Rahe, R., Scalzi, C., & Shine, K. (1975). A teaching evaluation questionnaire for postmyocardial infarction patients. Heart and Lung, 4, 759-766.
- Raleigh, E. & Odtohan, B. (1987). The effect of a cardiac teaching program on patient rehabilitation. Heart and Lung, 16, 311-316.
- Runions, J. (1985). A program for psychological and social enhancement during rehabilitation after myocardial infarction. Heart and Lung, 14, 117-125.
- Scalzi, C., Burke, L., & Greenland, S. (1980). Evaluation of an inpatient educational program for coronary patients and families. Heart and Lung, 9, 846-853.
- Sivarajan, E., Newton, K., Almes, M., Kempf, T., Mansfield, L., & Bruce, R. (1983). Limited effects of outpatient teaching and counseling after myocardial infarction: a controlled study. Heart and Lung, 12, 65-73.
- Spielberger, C.D., Gorsuch, R.L., Lushene, R., Vagg, P.R., & Jacobs, G.S. (1983). Manual for the state-trait anxiety inventory (self-evaluation questionnaire). Palo Alto, CA: Consulting Psychologists.
- Steele, J. & Ruzicki, D. (1987). An evaluation of the effectiveness of cardiac teaching during hospitalization. Heart and Lung, 16, 306-310.
- Tabers medical dictionary. (1981). Philadelphia: F.A. Davis Company
- Wiggins, N. (1989). Education and support for the newly diagnosed cardiac family: a vital link in rehabilitation. Journal of Advanced Nursing, 14, 63-67.