

ABSTRACT

BOGE, J. B. Physical self-esteem across four phases of a cardiac rehabilitation program. MS in Adult Fitness/Cardiac Rehabilitation, 1993, 51pp. (L.A. Chase)

The purpose of this study was to investigate physical self-esteem across the four phases of cardiac rehabilitation. A total of 32 subjects between the ages of 55-75 (M = 22, F = 10), 2 in Phase I, 7 in Phase II, 4 in Phase III, and 19 in Phase IV) volunteered for this study. The Perceived Self-Perception Profile-Adults (PSPP-A), and the Perceived Importance Profile (PIP) instruments were administered to all subjects. The mean and standard deviation of the subjects were indicative of a mature cardiac rehabilitation population. A one-way analysis of variance (ANOVA) performed on the data indicated that there were no significant differences between phases for each subdomain for both the PSPP-A and the associated PIP ($p > .05$). However the Appearance subscale on the PSPP-A approached significance ($p = .07$). Additionally, the Functional Capacity subscale in the PIP approached significance ($p = .09$). Future investigations incorporating expansions and modifications to the current investigation are suggested to accurately assess physical self-esteem in cardiac rehabilitation programs.

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**PHYSICAL SELF-ESTEEM ACROSS FOUR PHASES OF A CARDIAC
REHABILITATION PROGRAM**

**A THESIS PRESENTED
TO
THE GRADUATE FACULTY
UNIVERSITY OF WISCONSIN-LA CROSSE**

**IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE
MASTER OF SCIENCE PROGRAM**

**BY
JUSTIN BOGE
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CHAPTER I

INTRODUCTION

Historically, medical care has focused on the prolongation of life. More recently other issues have surfaced and patients have become "enlightened consumers," who increasingly seek information about options available to them in the health care system. No longer satisfied with options within the biomedical (mortality and morbidity) domain, these "consumers" inquire into the psychosocial (quality of life) domain (Wenger, 1990). In essence, individuals suffering from chronic diseases (e.g., coronary disease) not only want to extend their life, but also are concerned about the quality of those extra years.

Patients' evaluation of satisfaction with medical care showed reflections predominantly toward the quality of life issue, rather than the precision of the diagnosis or the number and complexity of diagnostic methods used (Wenger, 1990). The importance of the patients' perceptions and value systems cannot be overlooked. They may at times conflict with the perceptions and value systems of the health care provider. These perceptions reflect the individual patient's own value system and judgement about well-being, personal health status, and quality of life.

Conflicts arise when the health care provider lacks the means to gain insight into his/her patients' personal perceptions. Such a conflict could impact upon the overall outcome of the health care experience. The medical definition of "quality of life" is an intricate concept that encompasses how a patient is affected by the illness and by its care (Wenger, 1990). Quality of life involves the following components: 1) comfort, a sense of well-being and life satisfaction; 2) the maintenance of reasonable physical, emotional, and intellectual function; and 3) the ability to participate in valued activities in the family, workplace, and community (Wenger, 1990).

Cardiac Rehabilitation: Quality of Life

One concern of a cardiac rehabilitation program is the patients' perception of the quality of their life (Lean, 1990). The program is structured to enhance the cardiac rehabilitation patients' quality of life by increasing their functional capacity and health status. Currently, patients following a significant cardiac event may be enrolled in a cardiac rehabilitation program. Cardiac rehabilitation is a multiphased, multidisciplinary program, oriented towards restoring individuals to optimal physiological, psychological, and vocational status within the limits imposed by their disease (Lean, 1990). A typical program consists of four phases: Phase I begins in the hospital, and

typically lasts 5 to 14 days postevent; Phase II is administered on an outpatient basis and lasts 1 to 3 months; Phases III and IV are community based programs, with the former concerned with mild conditioning (6-12 months) and the later with maintenance lasting a lifetime. Supporting program components include nutritional education, risk factor-behavior modification (smoking cessation, relaxation skills, and stress reduction), vocational therapy, and exercise rehabilitation. Such programs are initiated during the in-hospital phase and are later continued following hospital discharge (Wilson, 1988).

The ultimate goal of the cardiac rehabilitation program is to enable patients with cardiac disorders to resume active and productive lives within the limitations imposed by their disease for as long as possible (Lean, 1990). To attain this goal, exercise therapy is employed as a focal point. The exercise regime is usually very structured, with all patients participating in a similar program of progressive aerobic, anaerobic, and/or resistance training primarily aimed at restoring the patients' functional capacity (the perceived ability to make it through daily activities and/or one's perceived ability to function in daily chores) (Chase, 1991).

The medical community agrees that if functional capacity is increased and risk-factors are reduced, the

cardiac care patient will lead a longer, more fulfilling life (Franklin, Bonzheim, Gordon, & Timms, 1990; Lean, 1990; O'Connor et al., 1989; Wenger, 1990). Unfortunately there has been disappointing research questioning the effectiveness of cardiac rehabilitation in reducing mortality and morbidity. With the exception of two recent meta analyses, (O'Connor et. al., 1989; Oldrige, Guaytt, & Arimm, 1988), which showed that cardiac rehabilitation had a positive impact on mortality and morbidity, the efficiency and cost effectiveness of cardiac rehabilitation has been questioned. Discouragingly, De Busk (1989) states, "The only benefit of cardiac rehabilitation is an improvement in functional capacity, which is of secondary importance."

However, one of the main components of one's perception of "quality of life" is the maintenance of reasonable physical function and the ability to participate in valued activities in the family, workplace, and community (Wenger, 1990). It seems obvious that this component shares similar traits with the concept of functional capacity. As stated earlier, the concept of "quality of life" also refers to comfort, a sense of well being and life satisfaction (Wenger, 1990). Perceived health status, or how patients feels about their disease, also shares similarities with the global concept of "quality of life." Wenger (1990) found that perceived health status has been positively correlated

to mortality figures. Wenger also found perceived health status correlates better with work performance than does measured functional capacity. These examples illustrate the "quality of life" concept as being comprised of separate, equally important subdomains, perceived health status, and functional capacity.

Self-Esteem: Quality of Life

One contributor of "quality of life" is self-esteem (self-perception). Self-esteem is defined as the subjective evaluation of the self having as its basis a feeling of liking, respect, worth, satisfaction, and acceptance (Rosenberg, 1979). The roles of self-esteem as a mediator of behavior (Fox, 1987) make it a particularly important factor in cardiac rehabilitation. Through the years, the concept of self-esteem has grown and evolved into its present day interpretation. Initially, the approach to self-evaluation was on a unidimensional level, including all aspects of "self-concept" into one representative score (Coopersmith, 1967). Instruments used to measure global self-esteem accumulated scores across various aspects of life and consolidated them into one characteristic score. Later, global self-perception was shown to be multidimensional (Flemings & Courtney, 1984; Rosenberg, 1979). This notion of global self-esteem was challenged by studies that revealed underlying dimensionality (Fitts, 1965; Piers, 1977).

The concept of self was hypothesized to be multiple and differentiated, existing on different planes and including all planes. This notion of dimensionality implies that individuals evaluate themselves differently based on different points of reference. For example, individuals may perceive themselves to be physically uncoordinated, but in the classroom, their perceived intellectual prowess may make them feel in complete control and confident. The multidimensional model of self has replaced the notion of the unidimensional global self-concept and has since been extensively reviewed and validated (Gergen, 1971; Griffen, Chassin, & Young, 1981).

Recently, this multidimensional model has been extended. Shavelson, Hubner, and Stanton (1976) built on the multidimensional concept of self by proposing a hierarchical model which further divides the domains of self into four subdomains: academic, social, emotional, and physical. In a pyramidal structure, each domain feeds into the higher order of global self concept (see Figure 1).

Of interest to the cardiac rehabilitation professional is the subdomain of self, specifically physical self-esteem. Fox (1987) has presented the most explicative investigation into the structure and content of the perceived physical self-esteem and its relationship on the hierarchical model of self-esteem. This model of physical

Level 1

L 2

L 3

L 4

L 5

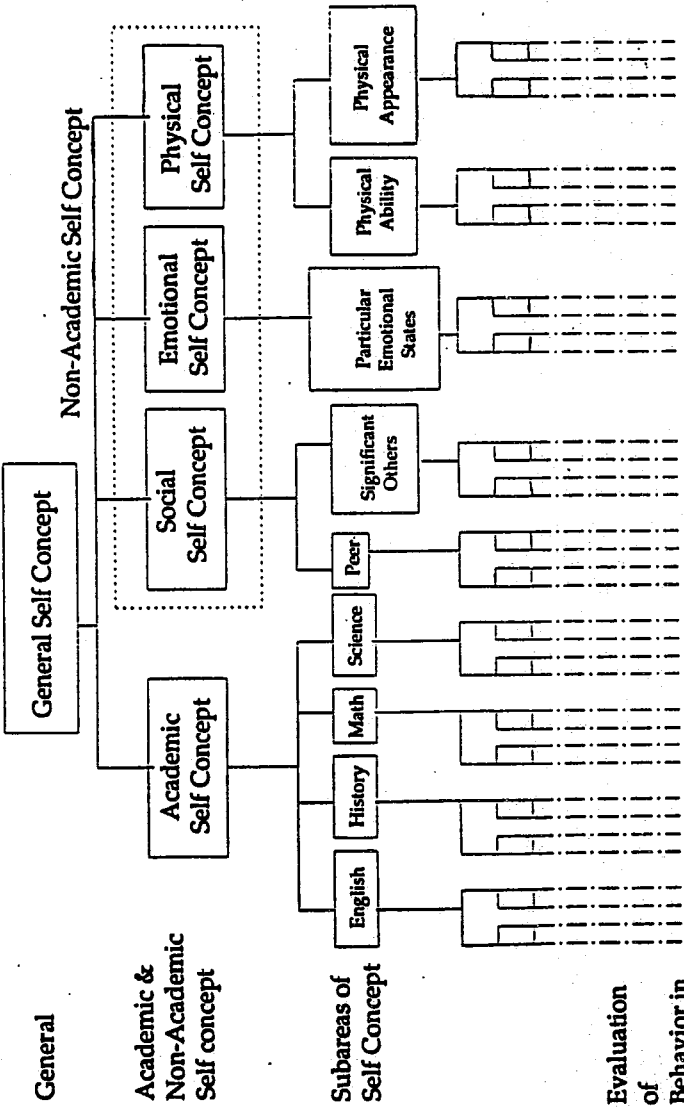


Figure 1. A Multidimensional Model of Self-Concept (Shavelson, Hubner, & Stanton, 1976)

self-perception was applied only to the college-aged population. The complex of physical self-esteem in older populations (55-75 years) was described by Chase (1991). Chase (1991) found that the geriatric physical self-perception structure was noticeably different from the college populations. The hierarchical arrangement presents four subdomains that affect one's perceived physical self: 1) perceived competence in sports, 2) perceived appearance, 3) perceived functional capacity, and 4) perceived health/diseased state (see Figure 2).

Chase's research resulted in two instruments for measuring physical self-concept in the geriatric population: The Physical Self-Perception Profile-Adults (PSPPA) and the associated Perceived Importance Profile (PIP). These two innovative instruments assess the four subdomains of adult physical self-esteem. Both are designed on a structured alternative format that is not highly correlated with social desirability (see Appendices A and B). The instruments have been subjected to rigorous statistical analysis and have been shown to be both valid and reliable (Chase, 1991).

Summary

Functional capacity and health status are important components of self-esteem. Self-esteem is an indicator of

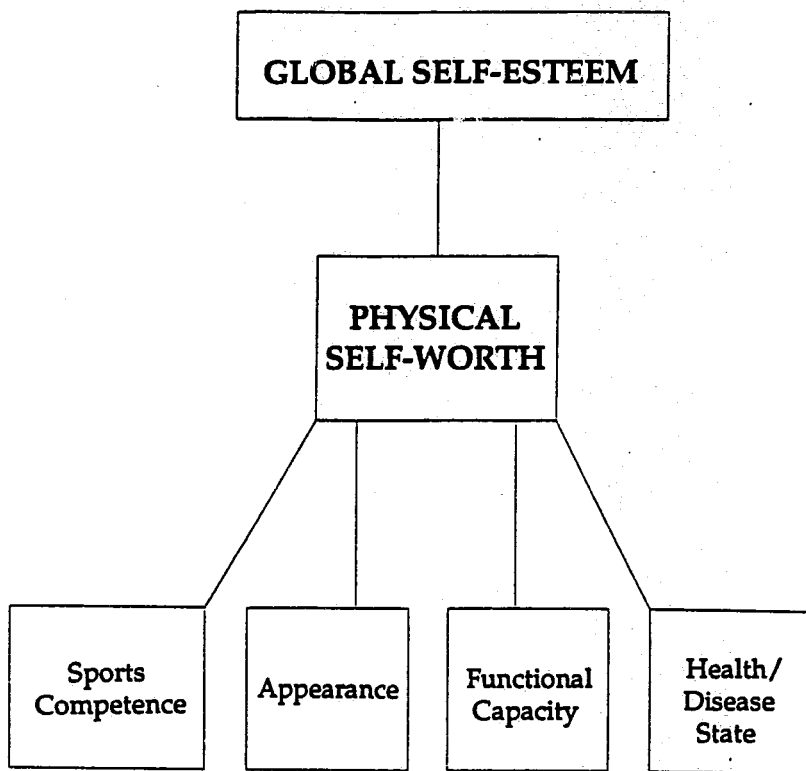


Figure 2. Proposed Physical Self-Worth Model

quality of life, with quality of life being a prime concern for cardiac rehabilitation patients. Since the progress of medical technology is continually increasing the average life span, these breakthroughs that extend life must be paralleled with the enhancement of the quality of life. Cardiac patients experience physical changes that effect their health status and functional capacity, all of which may directly have repercussions on their self-esteem.

Cardiac care providers have a responsibility to be educated about factors that may influence self-perceptions, which in turn may influence participation in a cardiac rehabilitation program. Patients' expectations often influence their perceptions of the satisfaction or dissatisfaction of the medical care. By being aware of what is important to the cardiac patient (relative to physical self-esteem), cardiac care providers can tailor a program to more adequately address the needs of their participants.

Purpose

The purpose of this research was to investigate physical self-esteem across the four phases of a cardiac rehabilitation program. Specifically, the objectives were:

1. To note any changes in the four subdomains of physical self-esteem across the four phases of cardiac rehabilitation.

2. To investigate any gender differences that may occur in physical self-esteem among cardiac rehabilitation participants.
3. To investigate the role of perceived importance of subdomains of physical self-esteem within a hierarchical structure in cardiac rehabilitation participants.

Hypothesis

The major hypothesis of this study was:

1. There will be no significant difference in physical self-esteem (including its four subdomains) among patients enrolled in cardiac rehabilitation programs (across Phases I to IV).

Assumptions

This study had the following assumptions:

1. It was assumed that subjects honestly answered the questionnaire to the best of their ability.
2. It was assumed that subjects responded to cardiac rehabilitation rather than some other unaccounted extraneous variable.
3. It was assumed that no other exercise training or psychological therapy occurred during the patients' cardiac rehabilitation.

Delimitations

This study had the following delimitations:

1. Thirty-two subjects aged 55-75 who had either a myocardial infarction (MI), open heart surgery, or some other cardiac event were eligible for participation in the study.
2. The Phase I and II participants were from St. Francis Medical Center in La Crosse, Wisconsin and Vernon Memorial Hospital in Viroqua, Wisconsin. The Phase III and IV participants were solicited from the La Crosse Exercise and Health Program at the University of Wisconsin-La Crosse and St. Francis Medical Center.

Limitations

This study had the following limitations:

1. A sample size from a small homogeneous population was studied.
2. The sample consisted of volunteers who may have reacted differently to the questionnaire than the average cardiac rehabilitation participant.

Definition of Terms

The following terms will be used in this study:

Physical Self-Worth - a subjective evaluation of the physical self having as its basis a feeling of liking, respect, worth, and satisfaction (Fox, 1987).

Physical Self-Esteem - physical self-worth arranged into four hierarchical subdomains which include: 1) perceived confidence in sports, 2) perceived appearance, 3) perceived functional capacity, and 4) perceived health/diseased state (perceived physical health; i.e., aches, pains, disease condition) (Chase, 1991).

Functional Capacity - the perceived ability to make it through daily activities and/or one's perceived ability to function in daily chores (Chase, 1991).

The Physical Self-Perception Profile-Adults (PSPP-A) - a 36 item questionnaire, using a four choice structured alternative format to assess the four subdomains of adult physical self-esteem (Chase, 1991).

The Perceived Importance Profile (PIP) - an 8 item questionnaire, using a four choice structured alternative format to assess adult perceived importance of physical self-esteem subdomains (Chase, 1991).

CHAPTER II

REVIEW OF RELATED LITERATURE

The Structure of Self-Perception

A key to understanding the influence of self-perception lies in understanding the conceptual structure. Initially, the approach to self-esteem was on a unidimensional level (Coopersmith, 1967). This approach involved the combination of various domain-specific scores, resulting in one global measurement of self-esteem. Rosenberg (1979) developed a 10 item questionnaire which included components of a global nature such as the degree to which one is satisfied with himself/herself, one's feelings of usefulness, and the acknowledgment of good personal qualities. Rosenberg's Self-Esteem Scale has been shown to be both valid and reliable in assessing the unidimensional global self (Flemings & Courtney, 1984).

Later the notion of global self-esteem was challenged by studies that revealed underlying dimensionality (Fitts, 1965; Piers, 1977). The Piers-Harris Self-Concept Scale revealed dimensions of global self-esteem such as intellectual status, behavior, and appearance/attributes (Piers, 1977). Similarly, Fitts' Tennessee Self-Concept Scale is comprised of eight dimensions (Fitts, 1965).

For example, individuals may perceive themselves to be "physical klutzes," but in the classroom their perceived intellectual prowess may make them feel in complete control and confident. This concept of self was hypothesized to be multidimensional and differentiated. The multidimensional model of self has replaced the notion of the unidimensional global self-concept, and has been extensively reviewed and validated (Gergen, 1971; Griffen, Chassin, & Young, 1981).

Shavelson, Hubner, and Stanton (1976) built on the multidimensional concept of self by proposing a hierarchical model which further divides the domains of self. Basically, they combined the ideas of the unidimensional/global self and the multidimensional domains of self. The result was a model of hierarchical arrangement (see Figure 2) which suggests that General Self-Concept (level 1) is comprised of four subdomains of self-concept: academic, social, emotional, and physical. Each subdomain is composed of several subareas of self-concept. For example, the academic subdomain is composed of self-concepts in english, mathematics, history, and science. In a funnelling fashion each domain feeds into the higher order of global self-concept, going from the specific to the general.

Of interest to the cardiac rehabilitation professional is the subdomain of physical self. Fleming and Courtneys'

(1984) findings supported the effects of physical ability and physical appearance on physical self-concept. Fox (1987) has presented the most extensive investigation into the structure and content of the perceived physical-self and its relationship on the hierarchical model of self-esteem. The work that Fox did produced a Physical Self-Perception Profile for college-aged people and identified some physical self-esteem variables. Through this instrument, Fox identified appearance, sports competence, general fitness, and physical strength as components of self-esteem in the college-aged population. One limitation of this instrument is that it was applied only to the college-aged population.

Interestingly, Muhler and Laird (1971) suggested that self-esteem differentiates with age. Even Fox (1987) recommended for future research that the phenomenon of physical self-perception measurement be investigated in additional populations, such as the middle aged and older populations. This differentiation motivated Chase (1991) to investigate and describe the complex of physical self-esteem in older populations (55-75). Of considerable interest, Chase found that the geriatric physical self-perception structure was noticeably different from the college populations. The hierarchical arrangement that Chase

revealed presents four subdomains that affect one's perceived physical self:

Perceived Sports Competence - This subdomain refers to perceived athletic, sport, or competitive experience/competence.

Perceived Appearance - This subdomain includes perceptions concerning the outward characteristics (bone structure, fat, skinny), affects of the physical body (slimming down), or opinions of the physical self (attractive).

Perceived Health/Disease State - This subdomain is composed of perceptions that involve the condition of physical health, such as aches and pains, illness, disease condition, and/or any reference to health.

Perceived Functional Capacity - This subdomain describes perceptions that affect one's ability to participate or make it through daily activities, and/or that enhances one's ability to function in necessary daily chores (see Figure 2).

Chase's (1991) research resulted in two instruments for measuring physical self-concept in the geriatric population: The Physical Self-Perception Profile-Adults (PSPPA), and the associated Perceived Importance Profile (PIP). These two innovative instruments assess the four subdomains of adult physical self-esteem. Both are designed on a

structured alternative format that is not highly correlated with social desirability. The instruments have been subjected to rigorous statistical analysis and have been shown to be both valid and reliable (Chase, 1991).

Importance of Physical Self-Esteem to the Cardiac Care Provider

Even though self-esteem appears to be an intricate part of general well being, it has rarely been examined in both the geriatric and the cardiac care populations. From previous research it becomes obvious that several factors impose on one's physical self-esteem. These factors can be managed and accentuated by cardiac care providers and tailored towards their patients to facilitate positive self-esteem. The goal, then, would be to design programs to facilitate positive self-esteem and thus enhance quality of life for the cardiac care patient.

Cardiac Rehabilitation Programs

The primary goal of many cardiac rehabilitation programs is the restoration of functional capacity in their patients. The physical changes that take place during and after a cardiac event are often dramatic. Much research has illustrated the effect that the physical changes can have on self-esteem. The focus of the earlier investigations highlights the impact of activity in reducing coronary artery disease risk (Buccola & Stone, 1975; Stone &

Rothstein, 1989) and functional ability (Franklin et al., 1990; Lean, 1990; Shepard & Pacelli, 1990). Shepard & Pacelli (1990) report that, as a result of physical activity, functional capacity will be increased by the equivalent of up to 10-20 years, with a corresponding increase of immediate life satisfaction and the enhancement of the quality in the remaining years of life. Studies have shown that great strides can be made in regaining strength, agility, and independence if a person pursues a regular exercise program (Shepard & Pacelli, 1990). Franklin et al. (1990) reports that as a result of physical activity, functional capacity will increase, with a corresponding increase in the satisfaction and quality of life.

Cardiac rehabilitation programs include many activities into their structured phases. Most of these programs not only involve exercise but also include individualized education, including nutrition, smoking cessation, relaxation skills, stress reduction, and vocational rehabilitation (Wilson, 1988). In this field of study, the effects of cardiac rehabilitation on self-esteem are unknown. Lean (1990) reports that the psychological benefits of exercise, particularly in cardiac patients, are based on clinical impressions, anecdotal in nature, or attributed to studies which have major methodological problems. A review of over 1000 articles on the

psychological effects of exercise conditioning by Hughes (1984) revealed that none of these controlled studies revealed significantly improved psychological functioning with exercise training, except for improved self-concept/esteem.

As the issue of quality of life expands and becomes more of a concern for the cardiac care patient, the knowledge of physical self-esteem must also expand. The future will obligate cardiac rehabilitation providers to educate themselves on the effects of physical self-esteem towards their patients' recovery.

CHAPTER III

METHODOLOGY

It was the intent of this study to investigate the changes in physical self-esteem across the four phases of a cardiac rehabilitation program. According to Wilson (1988), the four phases of cardiac rehabilitation and their time frames are:

	<u>Location</u>	<u>Duration</u>
Phase I	inpatient	5-14 days
Phase II	outpatient (clinical or hospital)	1-3 months
Phase III	outpatient (community based)	3-12 months
Phase IV	outpatient (community based)	beyond 12 months

The methods for this study were presented according to the following aspects: 1) subject selection; 2) procedures; and 3) statistical treatment of the data.

Subjects

Thirty-two cardiac rehabilitation patients served as subjects. Twenty-two males and 10 females between the ages of 55-75 years who had either a myocardial infarction (MI),

open heart surgery, or some other cardiac event, participated in this study.

The Phase I and II participants were from the St. Francis Medical Center in La Crosse, Wisconsin and the Vernon Memorial Hospital in Viroqua, Wisconsin. The Phase III and IV participants were solicited from the La Crosse Exercise and Health Program at the University of Wisconsin-LaCrosse and the St. Francis Medical Center.

Procedures

Potential subjects were contacted either by hospital staff (Phases I and II) or by one of the principal investigators (Phases III to IV). Phase I recruits completed the questionnaires 1 to 2 days prior to hospital discharge. Phases II-IV recruits completed the questionnaires prior to entry into their prospective phases. The Physical Self-Perception Profile-Adults (PSPP-A) and the associated Perceived Importance Profile (PIP) (see Appendices A and B) were administered to the 32 cardiac patients. The study was explained to them and opportunity was provided to ask questions. Subjects then signed an informed consent form (see Appendix C) if they agreed to participate in the study. Patients were then asked to complete both the PSPP-A and PIP questionnaires. Total time to complete the two questionnaires was approximately 10-20

minutes. The questionnaires were then returned for statistical analysis.

Statistics

Standard descriptive statistics were used to characterize the subject population. One-way analysis of variance (ANOVA) was used to assess any significant differences in the subdomains of self-esteem, across the four phases of cardiac rehabilitation.

CHAPTER IV

RESULTS

The purpose of this study was to investigate differences in physical self-perception across the four phases of cardiac rehabilitation. The study evaluated the four subdomains that contribute to physical self-esteem for adults by incorporating Chase's Physical Self-Perception Profile-Adults (PSPPA) and the associated Perceived Importance Profile (PIP) (see Appendices A and B) (Chase, 1991).

Thirty-two cardiac rehabilitation participants between the ages of 55-75 years volunteered for this study. Of this group, 22 were males and 10 were females. Each subject participated in a physician referred cardiac rehabilitation program (Phases I-IV) at either: St. Francis Medical Center, La Crosse, Wisconsin; Vernon Memorial Hospital, Viroqua, Wisconsin; or the La Crosse Exercise and Health Program, La Crosse, Wisconsin.

Descriptive Data

The descriptive characteristics of the subjects are presented in Table 1. The small number of subjects was a limitation of the study, however, the subject population

Table 1. Descriptive statistics of subjects

	<u>Males (n = 22)</u>	<u>Females (n = 10)</u>	<u>Total (N = 32)</u>
Age (yrs)	63.5 ± 6.18	66.2 ± 5.51	64.34 ± 6.02
Height (in)	69.6 ± 2.54	63.5 ± 2.22	67.72 ± 3.76
Weight (lb)	189.5 ± 40.00	149.8 ± 16.81	177.09 ± 38.93
<u>Number of Participants</u>			
Phase I	2	0	2
Phase II	4	3	7
Phase III	3	1	4
Phase IV	13	6	19
Total	22	10	32
<u>Marital Status</u>			
Married	21	5	26
Divorced	1	2	3
Single	0	2	2
Widowed	0	1	1
<u>Diagnosis*</u>			
MI	6	3	9
CABG	5	1	6
Valve	0	1	1
MI/CABG	2	1	3
CABG/PTCA	1	0	1
MI/CABG/PTCA	4	1	5
MI/CABG/PTCA/Valve	1	1	2
Other	2	3	5

*Diagnosis: MI = Myocardial Infarction; CABG = Coronary Artery Bypass Graph; PTCA = Percutaneous Transdural Coronary Angioplasty; Valve = Valvular Surgery.

involved in this investigation was normally representative of most cardiac rehabilitation programs across the country (Cannistra, Balady, O'Mally, Weiner, & Ryan 1992). Table 1 further reveals the frequency and type of cardiac events and marital status among the subject population, both of which may have had an effect on the subjects self-esteem.

Physical Self-Perception Profile-Adults

The study was designed to investigate differences in physical self-perception across the four phases of cardiac rehabilitation. To investigate these differences, the Physical Self-Perception Profile-Adults (PSP-P-A) instrument was used. This instrument is designed to specifically evaluate physical self-esteem in people between ages 55-75 years. It divides physical self-esteem into four subdomains with an additional subdomain representative of the general self-esteem. The four subdomains of the PSP-P-A are: 1) perceived competence in sports, 2) perceived appearance, 3) perceived functional capacity, and 4) perceived health/diseased state.

The means and standard deviations for the PSP-P-A and all individual items are presented in Table 2. The format for this instrument was designed for a 1 to 4 response. Therefore the mean item response is a 2.5.

Table 2. Perceived self-perception profile-adults data

Subdomain	Phase	Frequency	Mean	SD	ANOVA	
					F	p
Sports	I	2	1.75	.12	1.24	.31
	II	7	1.71	.63		
	III	4	2.04	.55		
	IV	19	2.11	.46		
Total		32	1.99	.51		
Appearance	I	2	2.08	.35	2.65	.07
	II	7	1.90	.16		
	III	4	2.08	.42		
	IV	19	2.28	.32		
Total		32	2.16	.33		
Functional Capacity	I	2	2.25	.19	1.98	.14
	II	7	2.07	.19		
	III	4	1.96	.16		
	IV	19	1.91	.24		
Total		32	1.97	.23		
Health/Disease	I	2	2.42	.12	.80	.50
	II	7	2.33	.14		
	III	4	2.33	.24		
	IV	19	2.21	.29		
Total		32	2.27	.25		
General	I	2	2.50	.24	.92	.44
	II	7	2.21	.23		
	III	4	2.17	.14		
	IV	19	2.32	.30		
Total		32	2.29	.27		

One-way analysis of variance (ANOVA) was used for each subdomain to investigate the difference between phases. The ANOVA indicated that there were no significant differences between phases for each subdomain on the PSPP-A ($p > .05$). However, the Appearance subdomain approached significance ($F_{(3,28)} = 2.65$; $p = .07$), and the means tended to increase as the subjects progressed from Phase I to Phase IV. This indicated that perceived appearance may be a significant contributor to physical self-esteem in this population.

Perceived Importance Profile

Also used to investigate physical self-esteem was the Perceived Importance Profile (PIP). It has similar, associated subdomains to the PSPP-A, however it measures perceived importance. Perceived importance is associated with self-esteem because the subdomains in the PSPP-A are "weighted" by how important the subjects perceive each subdomain to be.

The means and standard deviations for the PIP and individual items for all subjects are presented in Table 3. The format for this instrument was also designed for a 1 to 4 response, with a mean item response of 2.5.

A one-way ANOVA was incorporated for each subdomain to investigate the difference between phases. The ANOVA indicated that there were no significant differences between

Table 3. Perceived importance profile data

Subdomain	Phase	Frequency	Mean	SD	ANOVA	
					F	p
Sports Importance	I	2	1.75	.35	1.45	.25
	II	7	1.50	.50		
	III	4	2.00	.71		
	IV	19	1.92	.45		
Total		32	1.83	.50		
Appearance Importance	I	2	2.00	.00	.24	.87
	II	7	2.29	.24		
	III	4	2.38	.29		
	IV	19	2.24	.25		
Total		32	2.25	.51		
Functional Capacity Importance	I	2	2.50	.00	2.37	.09
	II	7	2.36	.24		
	III	4	2.75	.29		
	IV	19	2.58	.25		
Total		32	2.55	.27		
Health/ Disease Importance	I	2	1.00	.00	1.05	.38
	II	7	1.57	.45		
	III	4	1.38	.25		
	IV	19	1.37	.44		
Total		32	1.39	.42		

phases for each subdomain in the PIP ($p > .05$). However, the Functional Capacity subdomain approached significance ($F(3,28) = 2.37$; $p = .09$).

It is interesting to note that the subjects in this study had a low score in the Health/Disease subdomain as measured by the PIP ($M = 1.39 \pm .50$), which is indicative of

the reduced "importance" placed on the Health/Disease subdomain. However, the corresponding PSPP-A showed a high score ($M = 2.27 \pm .25$), which is indicative of adequate perceived health and disease status. This is noteworthy because the subjects surveyed in this study were cardiac rehabilitation patients who have documented heart disease.

CHAPTER V

DISCUSSION

Until recently, the pure objective of medical care has been simply the extension of life. A health care program was deemed successful when its associated mortality and morbidity were low. However, recent research reveals that the number of days in one's life is not necessarily an indicator of health care success. Rather, the quality of life after a medical event is becoming an indicator of a successful health care program. This idea includes the extent to which a patient can have or return to a perceived high quality of life.

One contributor to quality of life is self-esteem. Self-esteem is defined as a subjective evaluation of the self, having as its basis a feeling of liking, respect, worth, satisfaction, and acceptance (Rosenberg, 1979).

Cardiac rehabilitation programs have in the past been accused of not being effective in reducing morbidity and mortality rates among cardiac patients (O'Connor et al., 1989). However, cardiac rehabilitation has as its focus the restoration and maintenance of functional capacity via physical activity and patient education. Functional capacity has been identified as a subdomain of adult physical self-esteem (Chase, 1991). If functional capacity

is improved through participation in a cardiac rehabilitation program, then self-esteem may also be enhanced, and therefore enhance quality of life.

The success therefore in cardiac rehabilitation may be in its affect on quality of life via enhanced self-esteem. These theories have not yet been researched, and have led to this investigation of physical self-esteem across a cardiac rehabilitation program.

Due to the limited number of subjects in each phase, definite conclusions were not able to be drawn. However, the discussion will revolve around tentative trends and proposed outcomes.

PSPP-A Trends

The subdomain of Appearance as measured by the PSPP-A showed a tendency towards significant difference (see Table 2). The means for Appearance showed a trend to increase from Phases I-IV. This could possibly be due to some of the physical changes that occur as a subject progresses through the four phases of a cardiac rehabilitation program. For instance, as a subject progresses from Phases I-IV, if an invasive procedure was preformed, the scars will heal and become less visible.

Additionally, weight loss usually accompanies successful progression of a cardiac rehabilitation program for both the invasive and noninvasive patient. Similarly, many cardiac

rehabilitation programs have incorporated strength conditioning into their services. These changes in scar tissue, body shape, and muscle tone might affect the patients appearance because the patients may find that they have some control over their appearance.

Earlier research by Fox (1987) revealed that college women valued appearance more than college men. Future research may indicate that women in cardiac rehabilitation score differently in the Appearance subdomain than men. These differences could have implications to the cardiac care provider's approach towards men and women.

PIP Trends

The subdomain of Functional Capacity as measured by the PIP also showed a tendency towards significant difference. Even though these values did not qualify the null hypothesis for rejection, they hinted at possible trends. Other studies have reported that as a result of physical activity, (like that incorporated in a cardiac rehabilitation program), functional capacity will increase (Franklin et al., 1990; Shepard & Pacelli, 1990).

It is possible that the subjects in this study became less dependent on the hospital for their rehabilitation needs, and thus became more and more functional. Recall that Phases I and II of a cardiac rehabilitation program occur in the hospital setting. It is a necessity for these

patients to become more functionally independent as they leave the hospital. Progression through Phases III and IV requires more self reliance, and thus more importance is attached to functional capacity.

Summary

In the subdomain of Appearance, a high mean score on the PIP indicated associated importance. At the same time there was a high subdomain mean score in the PSPP-A. This would indicate a positive contribution on physical self-esteem because the subjects attached importance to their appearance which they perceived as being high and favorable. If further significance were found, cardiac care providers would be advised to incorporate more programs into cardiac rehabilitation which assist patients in their ability to affect their appearance.

The subjects in this investigation had a high Functional Capacity PIP mean score, but scored low in the Functional Capacity subdomain in the PSPP-A. This implies that the subjects valued being functional day to day, however, they did not perceive themselves as being very functional. Therefore this relationship may have a negative effect on their physical self-esteem. Cardiac care and education should then be geared towards programs that directly make patients more functional. For example a weight training program might improve patients' muscular strength, balance,

and flexibility. Similarly, aerobic activities such as walking could improve patients' cardiovascular endurance.

Various studies report that as a result of physical activity, functional capacity will increase, with a corresponding increase in satisfaction and quality of life (Franklin et al., 1990; Shepard & Pacelli, 1990). In addition, the medical community agrees that if functional capacity increases and risk factors are decreased, the cardiac patient will lead a longer, more fulfilling life (Franklin et al., 1990; Lean, 1990; O'Connor, et. al., 1989; Wenger, 1990).

Self-esteem is an indicator of quality of life, with quality of life being a prime concern for the cardiac rehabilitation patient. From previous research it becomes obvious that several factors impose on one's physical self-esteem. These factors can be managed by the cardiac care provider and tailored towards the patient to facilitate positive physical self-esteem. The cumulative effect of this process could enhance the patients' global self-esteem and quality of life.

Recommendations for Future Research

Based on the results of this study, the following recommendations for further research can be made:

1. Expand the current study to include a larger subject population, and/or a population spread out over numerous cardiac rehabilitation programs.
2. The inventories could be given to the subjects in a controlled environment. Subjects in this study were given the PSPP-A and the PIP to complete at home on their own. It may be helpful to have an investigator present to explain any questions that may arise.
3. The study could be expanded to compare invasive cardiac procedures (e.g., bypass surgery) versus noninvasive procedures (e.g., myocardial infarction). Invasive procedures tend to demand admission into a phased cardiac rehabilitation program at more remedial level. Serious invasive procedures might cause a greater impact on physical self-esteem than those that are noninvasive.

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APPENDIX A

THE PHYSICAL SELF-PERCEPTION PROFILE-ADULTS

THE PHYSICAL SELF PERCEPTION PROFILE (PSPP)

WHAT AM I LIKE?

These are statements which allow people to describe themselves.
There are no right or wrong answers since people differ a lot.

First, decide which one of the two statements best describes you.

Then, go to that side of the statement and check if it is just "sort of true" or "really true" FOR YOU.

Really True for Me	Sort of True for Me	EXAMPLE	Sort of True for Me	Really True for Me		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Some people are very competitive	BUT	Others are not quite so competitive	<input type="checkbox"/>	<input type="checkbox"/>

REMEMBER to check only ONE of the four boxes

- | | | | | | | | |
|----|--------------------------|--------------------------|--|-----|--|--------------------------|--------------------------|
| 1. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel that they are not very good when it comes to playing sports | BUT | Others feel that they are really good at just about every sport | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel that they have an attractive body | BUT | Others feel that compared to most, their body is not quite so attractive | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel extremely proud of who they are and what they can do physically | BUT | Others are sometimes not quite so proud of who they are physically | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel very alert and alive | BUT | Others feel listless and distracted | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. | <input type="checkbox"/> | <input type="checkbox"/> | Some people do not usually have alot of medical problems | BUT | Others always have medical problems | <input type="checkbox"/> | <input type="checkbox"/> |

- | | Really
True
for Me | Sort of
True
for Me | | | Sort of
True
for Me | Really
True
for Me | |
|-----|--------------------------|---------------------------|--|-----|---|--------------------------|--------------------------|
| 6. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel that they are among the best when it comes to athletic ability | BUT | Others feel that they are not among the most able when it comes to athletics | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel that they have difficulty maintaining an attractive body | BUT | Others feel that they are easily able to keep their bodies looking attractive | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. | <input type="checkbox"/> | <input type="checkbox"/> | Some people are sometimes not so happy with they way they are or what they can do physically | BUT | Others always feel happy about the kind of person they are physically | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel that they occasionally need to rely on others to accomplish everyday tasks | BUT | Others feel that they never need assistance to accomplish everyday tasks | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel that compared to most, their general physical health is not so good | BUT | Others feel that compared to most they have good physical health, in general | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. | <input type="checkbox"/> | <input type="checkbox"/> | Some people are not quite so confident when it comes to taking part in sports activities | BUT | Others are among the most confident when it comes to taking part in sports activities | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel embarrassed by their bodies when it comes to wearing few clothes | BUT | Others do not feel embarrassed by their bodies when it comes to wearing few clothes | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. | <input type="checkbox"/> | <input type="checkbox"/> | When it comes to the physical side of themselves, some people do not feel very confident | BUT | Others seem to have a real sense of confidence in the physical side of themselves | <input type="checkbox"/> | <input type="checkbox"/> |

- | | Really True for Me | Sort of True for Me | | | Sort of True for Me | Really True for Me |
|-----|--------------------------|--------------------------|--|-----|--|---|
| 14. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel they have all of the physical capabilities to do the tasks required for daily living | BUT | Others feel they lack some of the physical capabilities necessary to do most tasks required for daily living | <input type="checkbox"/> <input type="checkbox"/> |
| 15. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel they must visit the doctor very often in order to care for their physical health | BUT | Others are physically healthy and rarely visit a doctor's office | <input type="checkbox"/> <input type="checkbox"/> |
| 16. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel that they are always one of the best when it comes to joining in sports activities | BUT | Others feel that they are not one of the best when it comes to joining in sports activities | <input type="checkbox"/> <input type="checkbox"/> |
| 17. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel that they are often admired because their physique or figure is considered attractive | BUT | Others rarely feel that they receive admiration for the way their body looks | <input type="checkbox"/> <input type="checkbox"/> |
| 18. | <input type="checkbox"/> | <input type="checkbox"/> | Some people always have a really positive feeling about the physical side of themselves | BUT | Others sometimes do not feel positive about the physical side of themselves | <input type="checkbox"/> <input type="checkbox"/> |
| 19. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel confident in their physical ability to care for themselves | BUT | Others feel uneasy about their physical ability to care for themselves | <input type="checkbox"/> <input type="checkbox"/> |
| 20. | <input type="checkbox"/> | <input type="checkbox"/> | Some people are not very confident about their level of physical health | BUT | Others feel confident that they always maintain excellent physical health | <input type="checkbox"/> <input type="checkbox"/> |
| 21. | <input type="checkbox"/> | <input type="checkbox"/> | Some people are sometimes a little slower than most when it comes to learning new skills in a sports situation | BUT | Others have always seemed to be the quickest when it comes to learning new sports skills | <input type="checkbox"/> <input type="checkbox"/> |

	Really True for Me	Sort of True for Me			Sort of True for Me	Really True for Me	
22.	<input type="checkbox"/>	<input type="checkbox"/>	Some people feel that compared to most, their bodies do not look in the best shape	BUT	Others feel that compared to most, their bodies always look in excellent physical shape	<input type="checkbox"/>	<input type="checkbox"/>
23.	<input type="checkbox"/>	<input type="checkbox"/>	Some people wish that they could have more respect for their physical selves	BUT	Others always have great respect for their physical selves	<input type="checkbox"/>	<input type="checkbox"/>
24.	<input type="checkbox"/>	<input type="checkbox"/>	Some people are confident in their ability to get around their home and neighborhood	BUT	Others are not confident in their ability to get around their home and neighborhood	<input type="checkbox"/>	<input type="checkbox"/>
25.	<input type="checkbox"/>	<input type="checkbox"/>	Some people always have a really positive feeling about the physical side of themselves	BUT	Others sometimes do not feel positive about the physical side of themselves	<input type="checkbox"/>	<input type="checkbox"/>
26.	<input type="checkbox"/>	<input type="checkbox"/>	Given the chance, some people are always one of the first to join in sports activities	BUT	Others people sometimes hold back and are not usually among the first to join in sports	<input type="checkbox"/>	<input type="checkbox"/>
27.	<input type="checkbox"/>	<input type="checkbox"/>	Some people are extremely confident about the appearance of their body	BUT	Others are a little self-conscious about the appearance of their bodies	<input type="checkbox"/>	<input type="checkbox"/>
28.	<input type="checkbox"/>	<input type="checkbox"/>	Some people feel extremely satisfied with the kind of person they are physically	BUT	Others sometimes feel a little dissatisfied with their physical selves	<input type="checkbox"/>	<input type="checkbox"/>
29.	<input type="checkbox"/>	<input type="checkbox"/>	Some people feel that, compared to most, they are physically able to do for themselves extremely well	BUT	Others feel that compared to most, they are not physically able to do for themselves very well	<input type="checkbox"/>	<input type="checkbox"/>

- | | Really
True
for Me | Sort of
True
for Me | | | Sort of
True
for Me | Really
True
for Me |
|-----|--------------------------|---------------------------|---|-----|--|---|
| 30. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel confident about their ability to be free from illness and medical problems | BUT | Others are not so confident about their ability to remain free from illness and medical problems | <input type="checkbox"/> <input type="checkbox"/> |
| 31. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel very dependent on others to function daily | BUT | Others feel extremely independent in their daily functioning | <input type="checkbox"/> <input type="checkbox"/> |
| 32. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel that they are able to "do for themselves" when it comes to daily tasks | BUT | Others feel that they sometimes need help to do daily tasks | <input type="checkbox"/> <input type="checkbox"/> |
| 33. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel they can do most tasks required for daily living | BUT | Others feel they cannot do most tasks required for daily living | <input type="checkbox"/> <input type="checkbox"/> |
| 34. | <input type="checkbox"/> | <input type="checkbox"/> | Some people are confident in their ability to make it through day-to-day activities | BUT | Others feel less secure in their ability to function in day-to-day activities | <input type="checkbox"/> <input type="checkbox"/> |
| 35. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel physically ill very often daily living | BUT | Others rarely feel physically ill | <input type="checkbox"/> <input type="checkbox"/> |
| 36. | <input type="checkbox"/> | <input type="checkbox"/> | Physically some people are always free of aches and pains | BUT | For others, aches and pains occur quite frequently | <input type="checkbox"/> <input type="checkbox"/> |

APPENDIX B

THE PERCEIVED IMPORTANCE PROFILE

SCORING THE PERCEIVED IMPORTANCE PROFILE

The 4 subdomains in the associated PIP were 1) perceived competence in sports; 2) perceived appearance; 3) perceived functional capacity; and 4) perceived health/diseased state. Scores for each subdomain require an averaging of scores from 6 questions imbedded within the PIP which are particular to their respected subdomain. The questions representing each subdomain were as follows:

- Perceived Sports Competence - Q1, Q5;
- Perceived Appearance - Q4, Q8;
- Perceived Functional Capacity - Q3, Q7;
- Perceived Health/Disease - Q2, Q6.

HOW IMPORTANT ARE THINGS TO YOU?

- | | Really
True
for Me | Sort of
True
for Me | | | Sort of
True
for Me | Really
True
for Me |
|----|--------------------------|---------------------------|--|-----|--|---|
| 1. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel that being good at sports is vitally important to them | BUT | Others feel that being good at sports is not so important to them | <input type="checkbox"/> <input type="checkbox"/> |
| 2. | <input type="checkbox"/> | <input type="checkbox"/> | Some people believe that being free from aches & pains and medical problems is vitally important to them | BUT | Others believe that being free from aches & pains and medical problems is not of prime importance | <input type="checkbox"/> <input type="checkbox"/> |
| 3. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel it is important to physically function effectively and efficiently in daily living | BUT | Others feel that physically functioning effectively and efficiently in daily living is not so important | <input type="checkbox"/> <input type="checkbox"/> |
| 4. | <input type="checkbox"/> | <input type="checkbox"/> | Some people believe that having an attractive physique or figure is vitally important to them | BUT | Others believe that having an attractive physique or figure is not all that important in their lives | <input type="checkbox"/> <input type="checkbox"/> |
| 5. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel that having very good sports ability and skill is not so important to them | BUT | Others feel that having a high level of sports ability is really important to them | <input type="checkbox"/> <input type="checkbox"/> |
| 6. | <input type="checkbox"/> | <input type="checkbox"/> | Some people believe maintaining good physical health is important to them | BUT | Others feel that being physically healthy is not that important to them | <input type="checkbox"/> <input type="checkbox"/> |
| 7. | <input type="checkbox"/> | <input type="checkbox"/> | Some people feel that being physically independent in daily living is not so important to them | BUT | Others feel that it is important to be physically independent in daily living | <input type="checkbox"/> <input type="checkbox"/> |
| 8. | <input type="checkbox"/> | <input type="checkbox"/> | Some people do not feel it is so important for them to spend a lot of time and effort maintaining an attractive body | BUT | Others think that it is vitally important for them to spend time and effort maintaining an attractive body | <input type="checkbox"/> <input type="checkbox"/> |

APPENDIX C

THE INFORMED CONSENT FORM

INFORMED CONSENT
UNIVERSITY OF WISCONSIN - LA CROSSE
LA CROSSE, WI 54601

Project Title: Physical self-esteem across four phases of a cardiac rehabilitation program.

Principal Investigator: Justin B. Boge / Dr. Lisa A. Chase

I, _____, volunteer to be a subject in a research study that will evaluate physical self-esteem in cardiac rehabilitation patients. I am between the ages of 55-75 years, and I am currently involved in a cardiac rehabilitation program. I understand that participation in this study requires that I complete two pencil and paper questionnaires. I will attempt to answer the questions as sincerely and honestly as possible.

Total time to complete the questionnaires is approximately 20-30 minutes. Anonymity and confidentiality will be maintained at all times. Only the researchers will have access to specific patient data.

It is hoped that the data you provide for this study will aid future cardiac care providers to target more specifically the needs and desires of cardiac patients. Results of this pilot study will also be useful in planning a longer, more indepth study, which could have a tremendous impact on the future of cardiac rehabilitation program design. The final results of this study will be sent to you if you are interested in the results.

I understand that permission to answer this questionnaire is voluntary. I also understand that I am free to terminate this test at any point if I so desire.

I have read the foregoing and understand what is expected of me. I know that I can ask questions at any time prior to, during, or after the test. I consent to participate in this study.

Signed: _____

Date: _____

Witness: _____

Date: _____