The effects of a cardiac pacemaker on the self-concept of children using the Piers-Harris Children's self-concept scale
by Raymone Jeanine Annau

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Nursing
Montana State University
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Abstract:
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Neuman's System Model and Erik Erikson's theory of self-concept were used as the theoretical framework for this study. The aim of this study was to evaluate the self-concept of children with pacemakers age 10 to 19 years. The study was conducted from October 1994 to March 1995.

The participants were identified by their cardiologists for inclusion in the study. A sample of 20 was obtained with participants residing in Idaho, Montana, and Utah. The Piers-Harris Children's Self-Concept Scale (PHCSCS), a self-report questionnaire, was used as the research tool.

Findings from the study revealed the sample group scored statistically significantly higher on the PHCSCS than the normative sample p=0.0008. In the current sample boys scored higher than girls, but this finding was not statistically significant.

Implications for nurses from this study include assessment and education of the client and family with a focus on wellness and the promotion of health. Unique opportunities exist for nurses working with these clients. Nurses need to address their educational offerings at the developmental level of their clients.

Further studies are indicated to examine the self-concept of children with pacemakers, as more children receive pacemakers and at an earlier age.
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by
Raymone Jeanine Annau

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APPROVAL

of a thesis submitted by

Raymone Jeanine Annau

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

Date Chairperson, Graduate Committee

Approved for the Major Department

Date Head, Major Department

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Signature [Signature]
Date [May 9, 1995]
This work is dedicated to my parents,

Eugene F. and Lillian M. Annau.
ACKNOWLEDGEMENTS

This opportunity is taken to thank those special people who helped make my thesis a reality.

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To my friends, coworkers, and classmates for their caring and support.
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ABSTRACT

Approximately 1 to 2% of all permanent pacemakers implanted annually in the United States are in pediatric clients (Smith, 1990). The physiological effects of a pacemaker have been well documented, while a paucity of literature is available on the psychological and psychosocial effects.

Neuman's System Model and Erik Erikson's theory of self-concept were used as the theoretical framework for this study. The aim of this study was to evaluate the self-concept of children with pacemakers age 10 to 19 years. The study was conducted from October 1994 to March 1995.

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Further studies are indicated to examine the self-concept of children with pacemakers, as more children receive pacemakers and at an earlier age.
CHAPTER 1

INTRODUCTION

Cardiac pacemakers have been in use since the 1960s. One to two percent of all the pacemakers (pulse generators) are implanted in children (Smith, 1990). Pacemakers are devices used to regulate the heart's electrical conduction system. The most common use for a pacemaker in children is congenital complete heart block or complete heart block as a result of surgery for congenital cardiac anomalies. Technical advances, primarily reduction in the size of pacemakers, have increased the use of pacemakers in pediatric clients. Numerous studies have been done with pediatric participants regarding physiological changes with a pacemaker. Other studies addressing psychosocial attitudes or adjustments of self-concept have been done with pediatric clients diagnosed with chronic diseases, that is, diabetes mellitus, asthma, and cerebral palsy. Limited investigations evaluating self-concept have been conducted with pediatric clients with a pacemaker.
Problem statement

The problem under investigation in this study was to determine if a pacemaker has an effect on the self-concept of children ages 10 to 19 years using the Piers-Harris Children’s Self Concept Scale, PHCSCS, (Piers, 1984).

Purpose

The purpose of this study was to describe what effects, if any, a cardiac pacemaker has on the self-concept of children ages 10 to 19 years, using the PHCSCS. The PHCSCS is an 80 item yes or no answer questionnaire, specifically designed for use with children ages eight to 19 years. The participants were identified by their cardiologist(s) for inclusion in the study. The parent(s)/guardian(s) were asked to sign a consent form which was returned to the researcher (Appendix C). All participants received an assent form (Appendix C). Answer forms were coded to assure each participant had consent and/or had consented to participate in the study. Participation was strictly voluntary and a participant could withdraw at anytime. The study posed no harm to the participant or to participant families. Children with Down’s Syndrome, multiple birth defects, or developmental delays were excluded from the study. A sample of 20 was thought to be representative of pediatric clients
with pacemakers for comparison to Piers and Harris's original group. Piers and Harris studied 1,183 children grades four through 12 from a single school district in Pennsylvania. The primary differences this researcher identified were geographic and possible cultural differences. The PHSCS was used by Long & Hamlin (1988) specifically to look at cultural considerations with Native American children. A review of other cultures by Long & Hamlin (1988) showed no clear indication of low self-concept being related to ethnicity. Rather, relevance of scores seemed more related to environment than ethnicity.

**Theoretical framework**

Neuman's System Model (1982, 1995), originally introduced by Betty Neuman in 1972 and Erik Erikson's theory of development (1950), are integrated for the theoretical framework of this study. In the researcher's opinion, both Neuman and Erikson view the individual as being unique with the environment producing effects which add to the uniqueness of the developing individual. These views are congruent with these two theorists.

"The Neuman Systems Model is based on two major components: stress and the reaction to stress" (Neuman, 1995, p. 22). The goal of the Neuman Systems Model is
maintenance of the client/client system. The client/client system is identified as being unique. Each response of a system part is studied and understood as it relates to the stability of the whole. A wholistic approach to client stabilization, with a dynamic interrelationship of five variables (physiological, psychological, developmental, sociocultural and spiritual), is the core of the Neuman Systems Model. Each of these variables are ideally "functioning harmoniously or stable in relation to both internal and external environmental stressor influences" (Neuman, 1995, p. 22).

Neuman (1995) bases her systems model on ten assumptions:

1. Although each individual client or group as a client system is unique, each system is a composite of common known factors or innate characteristics within a normal, given range of response contained within a basic structure.
2. Many known, unknown, and universal environmental stressors exist. Each differs in its potential for disturbing a client's usual stability level or normal line of defense. The particular interrelationships of client variables—physiological, psychological, sociocultural, developmental, and spiritual—at any point in time can affect the degree to which a client is protected by the flexible line of defense against possible reaction to a single stressor or a combination of stressors.
3. Each individual client/client system has evolved a normal range of response to the environment that is regarded to as a normal line of defense, or usual wellness/stability state. It represents change over time through coping with diverse stress encounters. The normal line of defense can be used as a standard from which to measure health deviation.
4. When the cushioning, accordion-like effect of the flexible line of defense is no longer capable of protecting the client/client system against an environmental stressor the stressor breaks through the
normal line of defense. The interrelationships of variables—physiological, psychological, developmental, sociocultural, and spiritual—determine the nature and degree of system reaction or possible reaction to the stressor.

5. The client, whether in a state of wellness or illness, is a dynamic composite of the interrelationships of variables—physiological, psychological, sociocultural, developmental, and spiritual. Wellness is on a continuum of available energy to support the system in an optimal state of system stability.

6. Implicit within each client system are internal resistance factors known as lines of resistance, which function to stabilize and return the client to the usual wellness state (normal line of defense) or possibly to a higher level of stability following an environmental stressor reaction.

7. Primary prevention relates to general knowledge that is applied in client assessment and intervention in identification and reduction or mitigation of possible or actual risk factors associated with environmental stressors to prevent possible reaction. The goal of health promotion is included in primary prevention.

8. Secondary prevention relates to symptomatology following a reaction to stressors, appropriate ranking of intervention priorities, and treatment to reduce their noxious effects.

9. Tertiary prevention relates to the adjustive processes taking place as reconstitution begins and maintenance factors move the client back in a circular manner toward primary prevention.

10. The client as a system is in dynamic, constant energy exchange with the environment. (p.21)

Neuman's concept pictorially represented is a basic structure at the center with various solid and broken concentric circles around the basic structure (Fig. 1). The core or "basic structure consists of common client survival factors, as well as unique individual characteristics. It represents the basic system energy resources" (Neuman, 1995, p. 45).
The client/client system as defined by Neuman (1995) is:

- A composite of variables (physiological, psychological, sociocultural, developmental, and spiritual), each of which is a subpart of all parts, forms the whole of the client. The client as a system is composed of a core or basic structure of survival factors and surrounding protective concentric rings. The concentric rings are composed of similar factors, yet serve varied and different purposes in either retention, attainment, or maintenance of system stability and integrity or a combination of these. The client is considered an open system in total interface with the environment. The client is viewed as a system, and the term can be used interchangeably with the client/client system. (p. 45)

The outermost ring is labeled the flexible line of defense. The function/purpose of the flexible line of defense is to protect the basic structure from stressors. Neuman (1995) views the flexible line of defense as accordion-like; "the greater the expansiveness of this line from the normal line
of defense, the greater the degree of protectiveness” (p. 46).

Stressors are any environmental factors (intrapersonal, interpersonal, or extrapersonal) which have the ability to disturb the stability of the system. "A stressor is any phenomena that might penetrate both the flexible and normal lines of defense, resulting in either a positive or negative outcome" (Neuman, 1995, p. 47). Neuman (1995) defines stressors as having negative effects called Entropy or positive effects called Negentropy. A positive effect is produced when the stressor promotes wellness and growth. A negative stressor produces an illness response.

Stressors are identified by Neuman (1995) as intrapersonal, interpersonal, and extrapersonal.

Intrapersonal stressors: Internal environmental forces occurring within the boundary of the client/client system (for example, conditioned response or autoimmune response).

Interpersonal stressors: External environmental interaction forces occurring outside the boundaries of the client/client system at proximal range (for example, between one or more role expectations or communication patterns).

Extrapersonal stressors: External environment interaction forces occurring outside the boundaries of the client/client system at distal ranges (for example, between one or more social policies or financial concerns. (p. 23)

Stressors for the pediatric client with a pacemaker may include: intrapersonal, such as the actual implantation procedure, the location of the implanted pacemaker, the resulting scar from the procedure, the awareness of a
foreign body under the skin; interpersonal, such as reaction or support of family and friends; and extrapersonal, such as the need to have pacemaker checks and evaluations. The pediatric client will usually require the pacemaker for life and will therefore experience numerous explants and implants of the devices.

All internal and external influences surrounding a client/client system are broadly defined as environment. There is a circular nature to the reciprocal relationship between the client and the environment regarding input, output, and feedback, the result being "corrective or regulative for the system" (Neuman, 1995, p.30). Environmental forces may influence the system either negatively or positively, as well as the system influencing the environment.

All these forces, solely within the client/client system are deemed internal environment. All forces external or existing outside of the client/client system are considered the external environment. The nature and possible outcomes of environmental influences need to be identified, according to Neuman. Neuman (1995) has identified and presented another environment:

the created environment, represents an open system exchanging energy with both the internal and external environment. This environment, developed unconsciously by the client, is a symbolic expression of system wholeness. That is, it acts as an immediate or long-range safe reservoir for existence or the maintenance of system integrity expressed consciously, unconsciously, or both simultaneously. (p. 31)
The dynamic created environment represents the unconscious mobilization of all the system variables by the client. Included in the created environment are those energy factors of the basic structure which support system stability, integrity, and integration.

The purpose of the created environment "is to offer a protective coping, shield or safe arena for system function as the client is usually cognitively unaware of the host of existing psychosocial and physiological influences" (Neuman, 1995, p.31). Incorporating her five variables, Neuman (1995) cites the insulating effects a created environment can make on changes in client/client system response or possible response to environmental stressors: "the use of denial or envy (psychological), physical rigidity or muscular constraint (physical), life-cycle continuation of survival patterns (developmental), required social space range (sociocultural), and sustaining hope (spiritual)" (p.31).

Neuman (1995) believes:

all basic structure factors and system variables influence and are influenced by the created environment, which is developed and maintained through binding energy in varying degrees of protectiveness; at any given place or point in time or over time, it may be necessary to change a situation or the self to cope with threat. The following environmental typology is now established for the Neuman Systems Model:

Internal environment-intrapersonal in nature
External environment-inter- and extrapersonal in nature
Created environment-intra-, inter-, and extrapersonal in nature. (p.31)

The normal line of defense, according to Neuman (1995), is "an adaptation level of health developed over
time and considered normal for a particular individual client or system; it becomes a standard for wellness - deviance determination" (p. 46). "It is the result of previous behavior, defining the stability and integrity of the system and its ability to maintain them. Influencing factors are the system variables, coping patterns, lifestyle factors, developmental and spiritual influences, and cultural considerations" (Neuman, 1995, p. 30). The normal line of defense, as seen in Figure 1, is the outer solid line which encircles the inner lines of resistance. The line is representative of what the client has become. The normal line of defense is dynamic, in that it expands and contracts over time. The normal line of defense is also dynamic "in terms of its ability to become and remain stabilized to deal with life stresses over time, thus protecting the basic structure and system integrity" (Neuman, 1995, p. 30). In the pediatric client the developmental stage and the influencing factors impact the stability of the normal line of defense. The pediatric client is more in the process of establishing the normal line of defense where as the adult client is focused on maintaining the line of defense. When dealing with pediatric clients and their families, "all Neuman model variables are considered with particular emphasis on developmental and sociocultural variables" (Neuman, 1995, p. 153). By addressing cultural variables, Neuman (1995) believes nurses facilitate trust in the health
care system, thereby improving compliance and decreasing alienation of the family. When a child is admitted to the hospital, the stability of the flexible and normal lines of defense are threatened for both the child and the family. The hospital setting and the providers are unfamiliar and can be frightening. The response of the hospitalized child will be dependent upon culture, age, and developmental level.

In the researcher's practice, when evaluating the pacemaker of the pediatric clients, various measures are employed to facilitate care and reduce the stressors of the procedure. Parents or care givers are encouraged to be with the client. The client is often asked to hold the programming head over the pacemaker; this gives them a sense of control. The family and client are given information to promote health retention specifically addressing the importance of routine pacemaker checks and the avoidance of contact sports. In Neuman's Model (1995) each plan of nursing care has inherent measures to promote growth and development, safety, exercise, nutritional health and the development of self-concept.

Lines of resistance are activated following penetration of the normal line of defense by environmental stressors. System integrity of the basic structure and normal line of defense is supported or protected by known and unknown internal resource factors of these lines of resistance.
"Effectiveness of the lines of resistance in reversing the reaction to stressors allows the system to reconstitute; ineffectiveness leads to energy depletion and death" (Neuman, 1995, p. 30).

The basic structure has individual factors which are common to all organisms, "that is, normal temperature range, genetic structure, response pattern, organ strength or weakness, ego structure and knowns or commonalities" (Neuman, 1995, p. 28). Neuman's five variables are considered to occur simultaneously in each client concentric circle. Neuman (1995) describes the five variables as follows: "Physiological refers to bodily structure and function, psychological refers to mental processes and relationships, sociocultural refers to combined social and cultural functions, developmental refers to life developmental processes, and spiritual refers to spiritual belief influence" (p. 28). The following is an adaptation of Neuman's Conceptual Model for a pediatric pacemaker client.

Table 1
Pediatric Pacemaker Client Conceptual Model.

<table>
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<th>Intrapersonal</th>
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Prevention as intervention is a model used by Neuman (1995) and provides an intervention typology. Intervention
may begin at anytime a stressor is identified or suspected. Primary prevention as intervention is described "as wellness retention, that is, to protect the client system normal line of defense or usual wellness state by strengthening the flexible line of defense" (Neuman, 1995, p. 33). A variety of strategies may be utilized for health promotion including the reduction of risk factors or prevention of stressors. According to Neuman (1995), primary prevention should be considered concomitantly with secondary and tertiary preventions as interventions.

When primary prevention fails or is not provided, a reaction may occur leading to secondary prevention as intervention. In secondary prevention, intervention is used as wellness attainment and would provide treatment for existing symptoms. The goal of secondary prevention as intervention "is to provide appropriate treatment of symptoms to attain optimal client system stability or wellness and energy conservation" (Neuman, 1995, p. 34).

Secondary prevention as intervention attempts to stabilize the client by using internal and external client resources to strengthen the internal lines of resistance, thereby reducing the reaction. Death occurs if secondary prevention as intervention fails to reconstitute the client. "Reconstitution is identified as beginning at any point following treatment; it is determined energy increase related to the degree of reaction" (Neuman, 1995, p.34-35).
The reconstitution level may stabilize the client above, below or equal to the usual wellness level or the normal line of defense prior to the illness.

Conservation of client system energy and maintenance of an optimal wellness level by existing supporting strengths is the goal of tertiary prevention as intervention. Tertiary prevention as intervention may be initiated in client reconstitution whenever some degree of system stability has occurred following treatment. In tertiary prevention as intervention, reconstitution depends on the client resources ability to "prevent further stressor reaction or regression; it represents a dynamic state of adjustment to stressors and integration of all necessary factors toward optimal use of existing resources for client system stability or wellness maintenance" (Neuman, 1995, p. 35).

Primary prevention as intervention are those interventions utilized for health promotion. An example of a stressor which breaks through the flexible and normal lines of defense, thereby threatening the lines of resistance, would be an infection at the site of the pacemaker implantation. The body responded in primary prevention as intervention with an increase in white blood cells and antibodies to fight the infection. Secondary prevention as intervention would be the treatments used by health care professionals to promote healing, reduce swelling and pain, and to combat the organism responsible for the infection.
Tertiary prevention as intervention could begin with secondary or primary prevention. Tertiary prevention includes education of client and care giver(s) to recognize signs and symptoms of infection, steps taken to prevent infection, and those interventions that can be effective in maintaining wellness or reconstitution. If reconstitution fails as a result of ineffective secondary prevention as intervention, the client will succumb to the infection and die.

A major set of variables within Neuman's model is development. A major component of development is the formation of the self-concept. The researcher has chosen to utilize the theories of Erik Erickson (1950) as the foundation theorist for self-concept development. Emotional growth and development include the development of self-concept. Self-concept is the idea of self acquired in childhood (Berger, 1984). The sense of self as a separate entity from the mother (Berger, 1984) gradually appears over the first two years of life. Erik Erikson, according to Berger (1984), has the most encompassing psychoanalytical view on the development of self-concept. Erikson (1950) refers to the stages of development as crises. A crisis is a "challenge to the ego that requires a change in perspective" (DiCaprio, 1983, p. 211). The ego crisis for school age is industry versus inferiority and identity versus role confusion is the ego crisis for adolescence. The three
phases of a crisis are: 1) Immature phase—crisis occurs in a mild form, before the critical phase; 2) Critical phase—the most intense phase of the crisis facing the ego; and 3) Resolution phase—the intense phase is resolved and the ego is strengthened (Erikson, 1950). Even resolved crises may reappear in later stages and in dissimilar ways.

Some problems or crises occur repeatedly during one’s life. Erikson discriminates between the immature, critical and resolution phases of these problems. For a child the problem or crisis of Identity is in its Immature phase, but reaches a critical phase during adolescence. If the Identity crisis is satisfactorily handled, it remains in resolution in later stages of development.

Erikson assigned tasks to his stages of development. These tasks are adaptable to various cultures and are similar to the ritualizations of a culture. Ritualizations are "recurring patterns of behavior characteristic of a particular society" (DiCaprio, 1983, p. 177). Each stage, when mastered, serves as a building block for the next stage. To understand the development of a healthy personality, Erikson (1950) states, we need to remember the Epigenetic Principle. The Epigenetic Principle states there is a ground plan for anything that grows and out of this plan, the parts ascend in a predetermined fashion until the whole unit is a functioning body.

Psychology lays the ground plan as it were for the
developmental path by which each of us becomes a distinct personality. Erikson defines the components, and their sequence, necessary for the development of mental health.

The individual with a healthy personality progresses to school age, mastering crises and attaining virtues through this mastery. The ego strength or virtue for this stage is competence. Competence can be viewed as the possession of valued skills and success in society as related to our competencies. The work of childhood should be play, where the child learns to master the pleasure of play and eventually shares the joys of the work. The work of childhood or play is industry or building things. The child learns to produce things and earns or wins approval by positive responses from parents, caregivers, teachers or peers. These positive responses foster and reinforce the virtue of competence. Through mastery and attainment of competence, the child will achieve the task of learning a skill. This follows Erikson’s cross cultural ritualizations, that the task of learning a skill holds true for any child regardless of their culture. Erikson’s augmentation of ritualization is a valuable asset in defining his Eight Stages of Man, while incorporating cultural values.

Socially, school age is a decisive stage with development of "a first sense of division of labor and of equality of opportunity" (Erikson, 1950, p. 93). If this stage of development is not positive, the child may exhibit
signs of inadequacy and inferiority (Erikson, 1950). This may well be the time when the child discovers that race, religion, economic status or family background will determine social worth, rather than ability or willingness to learn, resulting in lasting harm to the sense of identity. Erikson (1950) has labeled the ritualization of school age as formality. Formality refers to effective ways of doing culturally accepted things.

The virtue or ego strength of adolescence is fidelity, the ability to make and keep commitments and promises (Ryckman, 1993). The significant task is the establishment of a philosophy of life (DiCaprio, 1983). The adolescent faces many physical changes with growth spurts and the maturational changes of puberty, which may lead to very difficult periods of adjustment. Often the adolescent is more concerned with the opinions of peers than parents. The need for peer approval can overwhelm the adolescent, resulting in a turning away from parents.

Adolescence is a time when the realization of a "sense of ego identity" is understood (Erikson, 1950, p. 94). The ritualization of adolescence is ideology. "Ideology represents the commitment of an individual to a particular, culturally approved set of beliefs and values" (DiCaprio, 1983, p. 212), which is the beginning of the adolescents' definition of a philosophy of life. Much turmoil surrounds the adolescent. Physical growth spurts and developmental
processes exert tremendous physical changes in the
individual, adding to the existing emotional instability of
adolescence.

Neuman's theory as a nursing model looks at an
individual as the resulting integration of a behavior
composite, biological system, and an organism at a stage of
development which leads to a comprehensive picture of an
individual. The interaction of the physiological,
psychological, sociocultural, developmental and spiritual
variables determine an individuals' response to a stressor.
Erikson's theory recognizes the effects of society, which
may be viewed as internal and external environment, on the
developing personality. Erikson viewed the individual
through stages of development. Through the application of
Neuman's theory of stressors on the individual, in
conjunction with an understanding of Erikson's stages of
development, the impact on the individual can be defined. A
stressor does not necessarily evoke a negative or illness
response, but can promote growth or wellness when a positive
effect is produced.

Neuman's System Model (1995) states that nursing
assessment and intervention should include an assessment of
all knowledge factors which influence a client's perceptual
field. The client and care giver should both validate the
significance of the stressor and the significance should
lead to actions for resolution. Primary prevention as
intervention should strengthen the client's flexible line of defense. This may be accomplished through education and desensitization to stressors or by strengthening individual resistance factors. Based on client assessment, covert or potential stressors are identified and possible or actual reactions are defined. The nurse and client assessment is based on client experience, the meaning of the experience to the client, life-style factors, coping patterns and individual differences. Particular attention should be paid to cognitive abilities and stage of development when working with pediatric clients.

Secondary prevention as intervention identifies actual or known stressors and symptoms related to reaction to the stressors. In an assessment, the nurse and client determine the degree and nature of reaction and what resources (internal and external) are available to withstand a reaction. The client and nurse develop a rationale for goal setting. Secondary prevention is intervention as treatment. Client strengths and weaknesses are used to set priorities and related goals for the nursing diagnosis. Neuman (1995) emphasizes the optimal use of all resources (internal and external) such as: energy conservation, financial aid, and noise reduction. Priorities may be shifted as needs change with treatment. Secondary prevention or treatment may occur simultaneously with primary and tertiary prevention.

Stressors in tertiary prevention may be overt, covert
or residual. Residual stressors are those stressors which were not resolved during secondary prevention. Reactions may be classified as known residual symptoms, known stress factors or they may be hypothetical. Known residual symptoms are those symptoms which are known and remain despite intervention. Tertiary prevention as intervention following treatment identifies those factors which will maintain the lines of defense, thereby promoting maintenance of the clients optimal functioning level. These factors include the use of motivation, reality orientation, behavior modification, education/reeducation, progressive goal setting, and the use of all internal and external resources.

Research Hypotheses

1. Adolescents (13 to 19 years) will show a significant decrease in self-concept on the PHCSCS.

2. Children ages 10 to 13 years will not show a significant alteration in self-concept on the PHCSCS.

3. Gender will demonstrate a significant difference on the PHCSCS. Boys will be at a lower level than girls. In a study of adolescent diabetics by Hauser, Poellets, Turner, Jacobson, Powers and Noam (1979), boys scored lower than girls on all levels of ego development and those with low ego development also scored lowest on self-esteem.
For the purpose of this study, the following terms will be defined.

**Congenital complete heart block**

A conduction defect of the heart resulting in a disassociation of the p waves to the QRS complex on an electrocardiogram (EKG), present at birth.

**Pacemaker**

A device implanted under the skin for the purpose of producing an electrical stimulation via an electrode (epicardial or endocardial) which results in the mechanical action of blood being pumped to the body. The pacemaker is also capable of sensing the heart's own rhythm.

**Self-concept**

Other terms often used are self-esteem, self-image, and body-image. The operational definition of self-concept of an individual (aged 10 to 19 years) is measured by the Piers-Harris Childrens' Self-Concept Scale. The theoretical definition according to Mosby's (1983) is:

the composite of ideas, feelings, and attitudes that a person has about his own identity, worth, capabilities, and limitations. Such factors as the values and opinions of others, especially in the formative years of early childhood, play an important part in the development of self-concept. (p.976)
Delimitations

This was a convenience sample of children ages 10 to 19 years. Therefore, generalization to other age groups, or different geographic locations may be limited or inappropriate.

Limitations

Limitations for this study are identified as:

1. Parents or guardians may affect how the participants view themselves on the PHCSCS.
2. Parents or guardians may influence the participants' decisions on the PHCSCS.
3. The participants may choose to answer the questions as they think the researcher wants them to be answered.
4. Sample size is limited.

Significance

The significance of this study was to look critically at the self-concept of children with pacemakers and contribute to the scientific knowledge base of nursing. Technical advances have made it possible to implant pacemakers in infants. Nurses must address the unique needs of children. The development of a positive self-concept
will increase the flexible line of defense providing more protection to the child (the basic structure).
Self-esteem or self-concept needs to be studied by the health professional, as an association between low self-esteem and mental illness has been documented by research (Norris & Kunes-Connell, 1985). The lack of research led this researcher to explore the effects of a cardiac pacemaker on the self-concept of children with pacemakers.

**General Self-Concept**

Self-concept is one term used to refer to how individuals see themselves in their world. Other terms, often used interchangeably, are: self-image, body-image, self-esteem and personal identity (Mosby’s, 1983). Self-concept (Murray & Huelskoetter, 1987) “is learned as a consequence of meaningful interactions with others and the world” (p. 57). Sidney Jourard (1971) wrote about the “real self,” believing that humans only learn to know themselves as they disclose themselves to others in their world. Jourard later developed a questionnaire to study the way a person feels about their body (body-image). Jourard believed that humans can attain health and the fullest personal development only in so far as they gain the courage to be themselves with others and develop meaningful goals. Maslow (1954) believed that the “ways in which self-esteem may be expressed and achieved are in a large part, although not entirely, culturally determined” (p. 45). Maslow (1954)
referred to self-concept as self-actualization. Multiple factors are involved in the development of self-concept. These factors include the individual's perception of self and how the individual believes he/she is perceived by significant others (Murray & Huelskoetter, 1987).

The external environment includes responses communicated to the child by significant others. A child's growth and development of self-concept is affected through the dynamic interaction with other people, the environment, and innate qualities (Maslow, 1954). Family members, teachers, and peers' responses to a child have the potential for tremendous influence on the developing child. The influence of the external factors may be negative or positive. The child may develop a negative self-concept if the influencing factors are negative. Self-concept, self-esteem, or self-image are related to the reactions of others and what one believes other people see in oneself (Cooley, 1902). The values and opinions of others, especially in the formative years, play an important part in the development of self-concept.

Schonfeld (1969) found adolescents "feel that being different implies being inferior"(p.46). The adolescent, according to Schonfeld (1969), formulates an ideal body image from life's experiences, perceptions, comparisons, and identifications with others, real or imagined. Cornbach's (1963) study of a self-report by adolescents defines a
healthy self-concept as: "I am adequate to do present
demands upon me, and where I want to do better, I am capable
of improving" (p. 126).

An appropriate nursing diagnosis from the Fourth
National Conference on the Classification of Nursing
Diagnoses (Mosby's Medical & Nursing Dictionary, 1983) is:

Self concept, disturbance in: body image, self-esteem,
role-performance, personal identity... The disturbance
represents a disruption in the way one sees oneself. There
are four sub-components, each with its own etiology and
defining characteristics. The etiology of a disturbance in
body image may be biophysical, cognitive/perceptual,
psychosocial, cultural, or spiritual in nature. Defining
characteristics of a disturbance in self-esteem are an
inability to accept praise or encouragement, a lack of
participation in treatment and therapy, observed self-
eglect, self-destructive behavior, or a lack of eye contact
with others. Defining characteristics of the deficit include
verbal and non-verbal responses to a real or perceived
change in structure or function, a missing body part, trauma
to a non-functioning part, a change in general social
involvement or life style and a fear of rejection by others.
(p. 977)

Self-Concept of Children with Chronic Diseases

Brown (1985) looked at school age children with
diabetes mellitus and the adequacy of their self-concept.
She found 88% of 26 diabetic school age children studied had
average or above average scores for adequacy of self-concept
as measured by the Piers-Harris Children's Self-Concept
Scale (PHCSCS). The mean raw score was 64.30 with the range
of the norms being from 43-70. Eighteen, or 69% of the group
studied, had scores above the 70th percentile of the standardized norms (Brown, 1985).

When two groups of same aged subjects with and without diabetes were compared by Hauser, Poellets, Turner, Jacobsen, Powers, & Noam (1979), the study revealed slightly higher levels of self-esteem of the diabetic subjects. Saucier (1984) examined self-concept in a correlational study of 64 insulin dependent diabetic children to determine if a significant relationship was present between their self-concept and self-care activities of diabetes management. Eighty-one percent of the diabetic children in her study had higher levels of self-concept than PHCSCS standardized norms (mean x=60.86, norm mean =51.84).

Sullivan's (1978) study on the self-esteem of 205 adolescent girls, 105 diabetic and 100 non-diabetic, revealed no significant difference between the two groups.

In a study of 163 diabetic children, mean age 13, the Child and Adolescent Adjustment Profile (CAAP) and the Self-Perception Profile for Children (SPPC) were used to examine self-esteem. Findings from this study demonstrated a higher level of self-esteem for the diabetic children than the same aged non-diabetic children (Hauser, Poellets, Turner, Jacobsen, Powers, & Noam, 1979).

Eighty adolescent patients with chronic diseases were studied by Seigel, Golden, Gough, Lashley, & Sacker (1990). The results showed adolescents with chronic disease had a
lower self-esteem \( (p<0.001) \) than their age-matched healthy controls. The group of 80 patients was comprised of 20 patients with sickle cell disease, 20 with diabetes, and 40 with asthma.

A study measuring the self-esteem of 519 adolescents of the greater Los Angeles area was done by Kellerman, Zelter, Ellenberg, Dash, & Rigler (1980). Of the 519 adolescents, 310 were physically healthy and 168 were receiving treatment for various illnesses. The study revealed no significant differences between the two groups (Kellerman, et al., 1980). However, a significant difference by sex was found, with girls lower than boys in both groups.

In a comparison study of adolescent girls and boys, aged 13-18, with a chronic illness, Offer, Ostrov, & Howard (1984) found girls ranked significantly higher than boys on the Offer Self-Image Questionnaire (OSIQ). The chronic diseases included cancer, asthma, and cystic fibrosis. Within the study, children with cystic fibrosis scored lower in self-esteem on the OSIQ, but again boys were lower than girls. The possibility exists that children see themselves in a diminished view with regard to self-image as related to the physical effects of the disease.

The self-concept of children with cystic fibrosis, who attended a summer camp, was studied by Rubin and Geiger (1991) using the Primary Self-Concept Inventory. This scale uses different forms for boys and girls. Their study of the
self-concept of children with cystic fibrosis revealed girls had a significantly higher self-concept globally in the PSCI score than the boys, with p<0.05 at the beginning of camp and p<0.01 at the end of camp. No comparison was done to a normative population.

The ability of a child to cope with a chronic illness may also be affected by the way the family copes with the illness (Pollock, 1986). A pacemaker is a chronic condition in most situations, and therefore, could be viewed in the same light as a chronic illness with regard to parental influences on the child.

**Self-Concept of Children with Pacemakers**

Uzark, Dick, and Alpern (1986) reported 15 patients, mean age 12.9, with pacemakers did not differ from the normative population of PHCSCS. However, ten of the fifteen felt "left out of things" and twelve of the fifteen tended to "worry a lot". Alpern, Uzark, and Dick (1989) did a comparison of 30 pediatric patients ages 7 to 10 with two age and sex matched groups. Thirty patients had Congenital Heart Disease (CHD) with a pacemaker, thirty had similar CHD with no pacemaker, and thirty were physically healthy with no diseases diagnosed. Their study revealed that pacemaker patients believed they were more similar to
their peers than did the healthy and non-pacemaker CHD subjects (p<0.05).

In another study, Uzark, VonBargen-Mazza, and Messiter (1989) looked at the self-concept of adolescents with CHD (M=14.6 ±2.7) as compared to healthy counterparts (M=14.8 ±3.2), demonstrating no significant difference in overall self-concept. With limited studies available for review, it is this researcher’s conclusion that more research is needed to examine the psychosocial needs of children with pacemakers. This study will add to the scientific knowledge base on the self-concept of children with pacemakers. It is hoped this study will encourage further research on the self-concept of children with pacemakers. Nurses, through intervention research, need to address the strategies which will have a positive adaptation of the pacemaker within the life style of the child. Educational offerings need to be directed to the child’s developmental level.
CHAPTER 3

METHODOLOGY

This chapter describes the methods used in this study. Sections include the study design, procedure for data collection, instrument used, and statistical analysis of data.

Study Design

This was a descriptive study designed to examine the self-concept of pediatric children with pacemakers using the Pier-Harris Childrens Self-Concept Scale (PHCSCS). The participants were categorized by age (<13 or ≥13 years of age) and sex (male or female). Descriptive research studies "have as their main objective the accurate portrayal of the characteristics of persons, situations, or groups, and the frequency with which certain phenomena occur" (Polit & Hungler, 1991, p.643). Descriptive studies are frequently done in situations when characteristics associated with individuals are "inherently not subject to experimental control" (Polit & Hungler, 1991, p.177). The characteristic or independent variable that is a nonmanipulable variable in this study is the implanted pacemaker.
Setting

Participants were children ages 10 through 19 years, who had a permanent pacemaker. Participants were identified through the cooperation of Dr. Dennis Ruggerie, Montana Deaconess Medical Center, Great Falls, Montana and Dr. Vicki Judd at Primary Children's Medical Center in Salt Lake City, Utah (personal communication June, 1993). Participants lived within the states of Montana, Utah, and Idaho. Human subject approval was first obtained through the College of Nursing, Montana State University, Bozeman, Montana; the Montana Deaconess Medical Center, Great Falls, Montana (Appendix B); and later from Primary Children’s Medical Center, Salt lake City, Utah through Dr. Vicki Judd (personal communication October 26, 1995).

Sample

Subjects were pediatric pacemaker clients ages 10 through 19 years of age identified by their cardiologist as a potential participant. Of the twenty used in this study, 12 were ≥13 years of age and 8 were <13 years old. Six were male and six were female in the group ≥13 years of age. Five males and three females were in the age group <13.

This was a sample of convenience, using only those who chose to participate and who returned the consent letter and
questionnaire. Subjects with multiple congenital defects, Downs syndrome, developmental delays, or those unable to read and speak the English language were excluded from the study due to the inability to complete the questionnaire.

Subjects invited to participate in the study gave their assent. In addition, parental/guardian consent for those less than 18 years of age was obtained. Subjects could withdraw at anytime. There was no risk to the subject or their family except for the inconvenience of time to complete the PHCSCS, which takes less than 30 minutes.

**Data Collection Procedures**

Following approval by the Montana State University College of Nursing Human Subjects Review Committee, the researcher contacted the Human Subjects Review Committee at Montana Deaconess and received permission to conduct the study. Dr. Vicki Judd contacted Primary Children’s Medical Center for permission to access their clients (personal communication October, 26, 1995). Rob Nichols, a master’s prepared registered nurse, at Primary Children’s Medical Center mailed the forms to those clients he wasn’t able to access at the pacemaker clinic of Primary Children’s Medical Center. The forms were mailed to the participants for completion with an instruction letter, consent and assent forms. The researcher mailed the packets to those clients.
identified through the pacemaker clinic at Montana Deaconess Medical Center. Time was allotted for return of the completed form. Expected participation was 50% of those asked to take part in the study. A total of 35 forms were mailed; 24 (69%) questionnaires were returned. Three of the questionnaires failed to have accompanying consent forms and one was returned blank. These forms were not used in the data analysis. There were 20 usable questionnaires which represented a 57% return rate of usable forms.

Data collection began in October and was terminated in March, 1995. Final results were compiled during March 1995. Data was analyzed using the Number Cruncher Statistical System (NCSS) computer program.

**Instrument**

The tool for this research was the Piers-Harris Children's Self-Concept Scale (Appendix D). Permission to use the tool was obtained from Western Psychological Services, as a researcher has to be approved to use this tool (Appendix A). This is an 80 item yes or no questionnaire, written at the third grade reading level. The questionnaire was originally called *The Way I Feel About Myself*.

The PHCSCS was used as a self-administered questionnaire to collect the data. Self-concept is viewed
essentially phenomenological in nature. "It is not something that can be observed directly, but must be inferred from either behaviors or self-report" (Piers, 1984, p.43). Self-report, although subject to may types of distortions, is closer to the present definition of self-concept since it is a direct expression of that individual's experience of self.

Self-report was seen as the best way to collect data from this age group and sample, given the geographic locations. The questionnaires were anonymous, no names were to be written on the forms. Furthermore, many of the participants had no prior contact with the researcher. The likelihood of participant deception in these cases was reduced as they did not know the person interpreting the questionnaire.

Reliability for the PHCSCS has been well documented over the past 20 years. "Test-retest reliability coefficients for the total scale range between .65 and .81 for general public school population" and the internal consistency coefficients range from .73 to .81 (Long & Hamlin, 1988, p.43). The reports consist of means, frequencies and percentages of the demographic data. Comparison of the pacemaker group was done to the means of PHCSCS original results of 1,183 school children from one public school district in Pennsylvania (Piers, 1984). Cluster scales of the participants results are reported as they compare to the established norms of the PHCSCS. Cluster
scales of the PHCSCS look at six variables: Behavior, intellectual and school status, physical appearance and attributes, anxiety, popularity, and happiness and satisfaction. All cluster scales are rated in a positive direction of self-concept, so the higher the score the higher the self-concept within the cluster.

**Data Analysis**

Descriptive statistics are appropriate for reporting this study, as a paucity of studies exist on the self-concept of children with pacemakers. Raw scores of the participants were compared to the PHCSCS normative values. Comparison of raw scores of the group was done by sub-groupings using age (<13 or ≥13) and sex (male or female). These sub-groups cluster scores were compared using a T-Test.

Twenty-four questionnaires were returned. Three forms were thrown out for lack of consent from the parent/guardian. One form was returned blank and not used in the data analysis.

Data analysis was performed using the Number Cruncher Statistical System (NCSS) by Dr. Jerry Hintze. This is a computer program designed to analyze various forms of data by numerous methods.
CHAPTER 4

ANALYSIS AND INTERPRETATION OF DATA

In this chapter the results of the data analysis are presented and interpreted. The three hypotheses are tested and an interpretation of the results is incorporated into the report of the findings. The 0.05 level of significance was used for all tests. A computer program, Number Cruncher Statistical System (NCSS), was used for data analysis.

Data Collection

Data collection was conducted between October 1994 and March 1995. Thirty-five questionnaires were distributed and 24 were returned for a response rate of 69%. Three questionnaires were not used in the data analysis because the parental/guardian consent form did not accompany the completed forms. Of the thirty-five forms returned, one was not completed and therefore not used in the data analysis. The data analysis sample consisted of $n=20$ for a response rate of 57%.
Description of the Sample

The average age of those responding was 13.8 years. The average age for those ≥13 was 15.25 years and for those <13 the average age was 11.6 years. Gender of the participants was 55% male (n=11) and 45% female (n=9). In the group >13 years of age there were 12 (63%) participants (6 male and 6 female). Eight participants fell in the age group <13 (37%, 5 males and 3 females). Three of the participants were from Montana with the remaining participants residing in Utah or Idaho.

Tests of the Hypotheses

Hypothesis 1 stated: Adolescents >13 will show a significant decrease in self-concept on the PHCSCS. Another way of stating this is that the adolescents 13 to 19 years of age are expected to demonstrate a lower self-concept with p < 0.05 when compared to the normative values of the PHCSCS. The current sample was composed of 12 children in the >13 age group. Their mean total score was 61.73 compared to the PHCSCS total mean of 51.84 with p=0.0000. The p value is statistically significant for a higher self-concept from the current sample. Thus, the hypothesis is rejected.

Hypothesis 2 stated: Children ages 10 to 13 years will not show a significant alteration in self-concept on the
PHCSCS. Stated another way, the group of participants 10-13 years of age will demonstrate a statistically significant positive self-concept on the PHCSCS with \( p < 0.05 \). Eight participants of the current study were in this age group. Their mean raw score was 64.80 compared to the PHCSCS norm of 56.84 for a \( p = 0.0000 \). This \( p \) value is statistically significant showing the group <13 years of age scored higher on the PHCSCS than the normative sample of PHCSCS. The hypothesis is supported.

Hypothesis 3 stated: Gender will demonstrate a statistically significant difference on the PHCSCS. Boys will score at a lower level than girls. Restated, boys would score lower in the total raw score of the PHCSCS than the girls. The current sample mean for boys was 66.81 and for girls was 58 with \( p = 0.13 \). The \( p \) value is not statistically significant. The gross mean scores indicate the boys scored higher than the girls. The small sample size may be a factor in the lack of significance. The hypothesis is not supported in this sample.

In the Cluster scale analysis, the boys scored significantly higher than the girls on the attribute of anxiety with \( p = 0.04 \). The boys were significantly less anxious, statistically speaking, than the girls on this subscale of the PHCSCS Cluster scores (Table 2).
The total mean scores of the current sample and PHCSCS does show a statistically significant higher self-concept for the current sample with p=0.0008 (Table 3).

Table 2
Gender Difference from current sample

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Males (n=11)</th>
<th>Females (n=9)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior</td>
<td>14.54</td>
<td>13.55</td>
<td>0.24</td>
</tr>
<tr>
<td>Intellectual and school status</td>
<td>15.27</td>
<td>13.11</td>
<td>0.10</td>
</tr>
<tr>
<td>Physical Appearance and Attributes</td>
<td>10.18</td>
<td>9.11</td>
<td>0.48</td>
</tr>
<tr>
<td>Anxiety</td>
<td>11.63</td>
<td>8.66</td>
<td>0.04</td>
</tr>
<tr>
<td>Popularity</td>
<td>9.45</td>
<td>7.22</td>
<td>0.12</td>
</tr>
<tr>
<td>Happiness and Satisfaction</td>
<td>8.9</td>
<td>7.88</td>
<td>0.37</td>
</tr>
<tr>
<td>Total</td>
<td>66.81</td>
<td>58</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Table 3
Mean total scores Current Sample and PHCSCS norms

<table>
<thead>
<tr>
<th>Study</th>
<th>Mean</th>
<th>SD</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHCSCS</td>
<td>51.84*</td>
<td>13.87</td>
<td>n/a</td>
</tr>
<tr>
<td>Current sample</td>
<td>62.85</td>
<td>12.37</td>
<td>.0008</td>
</tr>
</tbody>
</table>

CHAPTER 5

DISCUSSION, CONCLUSIONS, IMPLICATIONS, RECOMMENDATIONS

Discussion

The discussion provides an interpretation of findings from the current sample as compared to the PHCSCS norms. The purpose of this descriptive study was to determine the effects of a pacemaker on the self-concept of children 10 to 19 years of age using the Piers-Harris Children's Self-Concept Scale (PHCSCS).

The study was done by examining the current study group by age (<13 and >13 years of age) and by gender (male or female). The findings in relation to the study's purpose and conceptual frameworks are summarized in this chapter. Implications for nursing and recommendations for future research are included. The theoretical frameworks used in this study were Betty Neuman's Systems Model and Erik Erikson's theory of the development of self-concept. A descriptive study was conducted, which included a convenience sample of 20. Potential participants were identified by their cardiologists. The participants resided in Idaho, Montana, and Utah. Data were collected by the researcher by mail and by Rob Nichols, R.N., M.S.N., on site at Primary Children's Medical Center, Salt Lake City, Utah.
or by mail. Mailed forms were returned to the researcher. The data collection tool was a self-report questionnaire developed by E. Piers and D. Harris to be used with children age 8 to 19 years.

Conclusions

Both age groups (<13 and ≥13 years) scored significantly higher on the PHCSCS than the normative sample by Piers and Harris. These findings failed to support the first hypothesis, adolescents ≥13 will show a significant decrease in self-concept on the PHCSCS. However, the second hypothesis was supported. The second hypothesis stated that children <13 years of age would demonstrate a statistically significant positive self-concept on the PHCSCS. The third hypothesis was not supported by the data. Gender differences were to show a significant difference with boys scoring lower than girls on the PHCSCS. However, boys scored higher than girls, but it was not statistically significant. Boys scored 66.81 and girls 58 suggesting that a larger sample may support statistical significance. An analysis of the Cluster scales revealed the boys scored significantly higher than girls on anxiety, indicating the boys were less anxious than the girls in the current sample.

The results of this study supported a study by Alpern et al. (1989), which demonstrated children with pacemakers
did not view themselves as different from their peers. Alpern and associates' study was conducted in a metropolitan area. The results of this study provide data on the self-concept of pediatric pacemaker children in rural settings.

**Limitations**

The primary limitation of this study was the small sample size. The sample consisted of 20 children with pacemakers from Idaho, Montana, and Utah. The participants were identified by their cardiologists for possible inclusion in the study. Any pediatric pacemaker children with multiple congenital defects, Downs Syndrome, or developmental delays were excluded from the study. Those children unable to read English were also excluded from the study. The tool used for this study did not address the collection of socioeconomic data.

**Implications for Nursing**

A primary goal of nursing is the promotion of health and the prevention of health problems through health promoting behaviors. Health problems include physiological, psychological, developmental, sociocultural, and spiritual domains. The results of this study have important implications for the nursing practitioner. No other health
care discipline has more opportunity to assess and educate pediatric pacemaker clients and their families. Nursing science can be instrumental in identifying strategies to promote a positive adaptation of a pacemaker, thereby promoting a positive self-concept. Advanced practice nurses such as Pediatric Nurse Practitioners (PNP) and Family Nurse Practitioners (FNP) have a unique opportunity to raise parents' awareness of the important role they can play in enhancing their child's self-concept (Sieving & Zirbel-Donisch, 1990).

Nurses can use Neuman's Systems Model to enhance understanding of and promote health for the client through application and understanding of her ten basic assumptions. The five client variables, which are continually interacting, relate to the normal line of defense or state of wellness. In this study, clients demonstrated a higher self-concept than the PHCSCS normative sample. This suggests that their normal line of defense is intact. Furthermore, there is an expanded area between the flexible line of defense and the normal line of defense, which enhances the client's wellness state. Use of these basic assumptions can add stability to the basic structure and reinforce the lines of resistance. Health promotion through education and assessment of stressors can further strengthen the flexible line of defense, reducing or preventing penetration by
stressors. This study, in concordance with Neuman's Systems Model, emphasizes a primary focus on wellness promotion.

Identifying Educational Needs of Nurses

A review of nursing literature revealed a paucity of studies addressing the self-concept of children with pacemakers. A review of nursing curriculum revealed coverage of physiological aspects of care for the adult pacemaker client, with little attention directed to psychological and psychosocial assessment or interventions. Promotion of health, through the positive adaptation of a pacemaker within the lifestyle of a client, must include psychological, developmental, psychosocial, and spiritual characteristics. When working with pediatric clients, nurses need to assess the developmental level of the client and direct their teaching accordingly. Family assessment is concomitant with client assessment. Family values and reactions have significant impact on pediatric clients. Nurses can provide information to support positive family influences and minimize negative reactions. Family assessment may reveal areas where the nurse can intervene, using methods for the enhancement of positive self-concepts, not only for the child, but within the family unit.
Recommendations for Future Study

This study examined the self-concept of children with pacemakers using the Piers-Harris Children's Self-Concept Scale (PHCSCS). Based on the literature review, few studies have been done on the self-concept of children with pacemakers. Therefore, future studies are needed to examine the immediate and long term effects of a pacemaker on the adaptation of a positive self-concept by these children. Future studies should also include sociodemographic data, age of the child when the pacemaker was implanted, and site of the implanted pacemaker. Qualitative data collection regarding how these children view their pacemakers and the impact on their lives should also be considered. Qualitative research based on interviews, although time consuming and considered by some to be "soft data", could greatly enhance the study of self-concept in children. Consideration should also be given to the development of an assessment tool designed specifically to measure the self-concept of children with pacemakers.

Other recommendations include a replication of this study in other geographic locations, and multiple site research studies with sharing and pooling of data to produce a study with a significantly large sample size. Longitudinal studies are recommended as these studies would evaluate changes in self-concept over time.
REFERENCES CITED


APPENDICES
APPENDIX A

PERMISSION TO USE QUESTIONNAIRE
Raymone Jeanine Annau  
1812 Mountain View Drive  
Great Falls, MT 59405  

February 10, 1994  

Dear Customer:  

Thank you for completing the Western Psychological Services "Test Users Qualification Questionnaire". Based on the information submitted, you are eligible to purchase all items listed in the WPS catalog, as long as your work is supervised by the mental health professional whose signature appears in section "E" of your qualification questionnaire.  

To aid our order processing department and avoid the possibility of delays, please send a copy of this letter with future orders.  

We appreciate your cooperation in assisting us to maintain high ethical standards in the distribution and use of psychological tests. If your qualifications change, or if you have questions about your current rating, please let us know.  

Sincerely,  

WPS Customer Service / Y.C.
March 22, 1995

Raymone Jeanine Annau
1812 Mountain View Drive
Great Falls, MT 59405-6522

Dear Ms. Annau:

Thank you for providing additional information on your request for authorization to reprint copyrighted WPS material for inclusion in the appendix of your thesis.

Due to format requirements at Montana State University, Western Psychological Services authorizes you to photoreduce a Test Booklet for the Piers-Harris Children’s Self-Concept Questionnaire (PHCSCS), for the above-described purpose only, provided each reprint bears the following required notice in its entirety:

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Please note that this authorization does not extend to reproduction by microfilm. Due to the public availability of microfilmed copies, Western Psychological Services' policy is not to authorize reproduction of its tests in this manner. While we regret any inconvenience our position may cause, we trust you understand our concern for ethical considerations.

We appreciate your consideration for our copyright. If you have other questions, please feel free to contact me again.

Sincerely yours,

Susan Dunn Weinberg
Assistant to the President
Rights and Permissions

SDW:se
APPENDIX B

REQUEST TO COLLECT DATA
Dr. Judd
Primary Children's Medical Center
Division of Pediatric Cardiology
100 N. Medical Drive
Salt Lake City, Utah 84311

Dear Dr. Judd,

I am a graduate student at Montana State University pursuing a Masters Degree in Nursing. I am interested in exploring the effect of a permanent pacemaker on the self-concept of children.

The purpose of this letter is a formal request regarding access to pediatric patients with cardiac pacemakers as we discussed in 1993.

All prospective participants' parents/guardians will be sent a letter of consent to be signed and returned before the research tool is sent out. The participants will receive a letter of assent after parental/guardian permission is received (see attached).

All data collected will be reported as group data with no individuals being identified. Participants will be specifically asked not to put their name on the answer sheet.

Data will be collected using the Pier-Harris Children's Self-Concept Scale. This is an 80 item yes or no answer questionnaire specifically designed for use with children ages 8 to 18 years. I will be addressing children ages 10 to 19 years in my study.

I would like to start my data collection this summer. Thank you very much for your cooperation. If you have any questions I can be reached by phone at 1-406-453-9272 or the Chair of My Thesis Committee, Marcia Gragert, PhD. can be reached through Montana State University, Great Falls Extended Campus, phone 1-406-455-5619.

Sincerely,

Raymone Jeanine Annau, R.N.
July 7, 1994

TO: Jean Annau
FR: Kay Chafey
Associate Dean (Acting)

RE: Human Subjects Proposal

The purpose of this memo is to give you approval to pursue your human subject proposal titled "The effects of a cardiac pacemaker on the self concept of children using the Pier-Harris Children's Self Concept Scale."

The Human Subjects Review Committee wishes you success with your study.

KHC/It
Montana Deaconess
Medical Center
1101 Twenty Sixth Street South
Great Falls, Montana 59405-5103
406 761-1200
August 12, 1994

Raymone Jeanine Annau, RN, BSN
Graduate Student
College of Nursing
Montana State University
1812 Mountain View Drive
Great Falls, MT 59405

Dear Jean:

As your study does not directly pose any potential harm to the patients involved, I am granting you temporarily authorization to proceed with your data collection. This authorization is effective contingent upon your attendance at the next Institutional Review Board meeting to present your study to our IRB. I have scheduled an abbreviated meeting for Tuesday, August 23rd at 9:00 AM in Conference Room A to address several issues including your request. Please make every effort to attend this meeting as our next meeting is not scheduled to be held until late October. We appreciate your cooperation with our investigational review process and look forward to your presentation.

Sincerely yours,

[Signature]

John Woon, R.Ph.
Chairman, Institutional Review Board

EXCELLENCE WITH A PERSONAL TOUCH
APPENDIX C

ASSENT AND CONSENT FORMS
Letter of Assent for Participants

Title of Study: The effects of a cardiac pacemaker on the self concept of children using the Pier-Harris Children's Self Concept Scale or how a heart machine (pacemaker) makes you think and feel about you, using a special booklet.

Dear Participant:

You were chosen to take part because you have a machine for your heart called a pacemaker. You were chosen because you are between the age of 10 and 19 years, and your parent(s)/Guardian(s) have agreed to let you take part. I would like very much for you to answer the questions in the booklet. If you fill out the enclosed booklet, please follow the steps given. You may ask an adult for help if really needed. The questions take about 20 to 30 minutes to answer. Do Not put your name on the form. Please put your age on the form and circle boy or girl and return the form in the envelope provided. If you decide not to take part please return the form in the envelope supplied. You may decide to quit at anytime. All results will be reported as group findings with no one person identified.

You may not know or feel any rewards from taking part in this study. However, your taking part may help nurses dealing with other children who have heart machines (pacemakers) in the future.

Please send questions to me: R. Jean Annau, R.N. at: 1812 Mountain View Drive, Great Falls, MT 59405 or to Marcia Gragert, PhD. College of Nursing, Montana State University, Great Falls Extended Campus (1-406-455-5610) 1101 26 Street South, Great Falls, MT 59405.

Thank you.
Sincerely,

Raymone Jeanine Annau, R.N.
Letter of Consent for Parent/Guardian of Participant

Title of Study: The effects of a cardiac pacemaker on the self-concept of children using the Piers-Harris Children’s Self-Concept Scale.

Dear Parent/Guardian:

Your child has been invited to participate in a study to help nurses better understand how children with pacemakers feel about themselves. I am a graduate student with Montana State University’s College of Nursing working towards a Master’s in Nursing degree. I have worked with pacemaker clients for 16 years and am really interested in what the pediatric client thinks about him/her self. Hopefully the results of this study will provide nurses with a better understanding of the pediatric pacemaker client, thereby improving their care. Many studies have been done regarding the self-concept of children with a chronic illness, but few have been done on children with pacemakers. Most studies on children with pacemakers have focused on physiological effects rather than psychosocial.

Your child has been selected because she/he is 10 to 19 years of age and has a pacemaker. Participation is strictly voluntary and poses no risk to your child. The questionnaire consists of 80 yes or no questions, which can be filled out by your child, taking about 20 to 30 minutes.

Your child may decide to withdraw from participation at anytime during the study. A copy of the results will be made available upon request. Please sign this form and use the postage paid envelope enclosed to return your reply. An assent letter for your child and instructions will accompany the questionnaire, which will be mailed after receiving your permission.

If you have any questions please feel free to call me.

Sincerely,

Raymone Jeanine Annau, R.N. Telephone (406) 453-9272
Address: 1812 Mountain View Drive, Great Falls, MT 59405

Parent/Guardian signature

Date
APPENDIX D

QUESTIONNAIRE
THE WAY I FEEL ABOUT MYSELF

The Piers-Harris Children's Self-Concept Scale
Ellen V. Piers, Ph.D. and Dale B. Harris, Ph.D.

Published by
WESTERN PSYCHOLOGICAL SERVICES
Publishers and Distributors
12031 Wilshire Boulevard
Los Angeles, California 90025-1251

Name: ___________________________________________ Today's Date: __________________________
Age:_________________ Sex (circle one): Girl Boy Grade: ________________________________
School: ________________________________ Teacher's Name (optional): _________________________

Directions: Here is a set of statements that tell how some people feel about themselves. Read each statement and decide whether or not it describes the way you feel about yourself. If it is true or mostly true for you, circle the word "yes" next to the statement. If it is false or mostly false for you, circle the word "no." Answer every question, even if some are hard to decide. Do not circle both "yes" and "no" for the same statement.

Remember that there are no right or wrong answers. Only you can tell us how you feel about yourself, so we hope you will mark the way you really feel inside.

TOTAL SCORE: Raw Score_______ Percentile_______ Stanine_______
CLUSTERS: I_______ II_______ III_______ IV_______ V_______ VI_______

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1. My classmates make fun of me ..........................................yes no
2. I am a happy person ..........................................................yes no
3. It is hard for me to make friends ......................................yes no
4. I am often sad .....................................................................yes . no
5. I am smart .............................................................................yes no
6. I am shy ................................................................................yes no
7. I get nervous when the teacher calls on me .....................yes no
8. My looks bother me ..............................................................yes no
9. When I grow up, I will be an important person .................yes no
10. I get worried when we have tests in school .................yes no
11. I am unpopular .....................................................................yes no
12. I am well behaved in school ..............................................yes no
13. It is usually my fault when something goes wrong .........yes no
14. I cause trouble to my family ................................................yes no
15. I am strong .................................................................  yes. no
16. I have good ideas .................................................................yes no
17. I am an important member of my family .........................yes no
18. I usually want my own way .................................................yes no
19. I am good at making things with my hands ....................yes no
20. I give up easily .................................................................yes no
21. I am good in my school work ..............................................yes
22. I do many bad things .........................................................yes
23. I can draw well .................................................................yes
24. I am good in music .............................................................yes
25. I behave badly at home .....................................................yes
26. I am slow in finishing my school work ..............................yes
27. I am an important member of my class ..............................yes
28. I am nervous .................................................................  yes
29. I have pretty eyes ............................................................yes
30. I can give a good report in front of the class ....................yes
31. In school I am a dreamer ....................................................yes
32. I pick on my brother(s) and sister(s) ..............................yes
33. My friends like my ideas ....................................................yes
34. I often get into trouble .........................................................yes
35. I am obedient at home .......................................................yes
36. I am lucky ............................................................................yes
37. I worry a lot ........................................................................yes
38. My parents expect too much of me .................................yes
39. I like being the way I am .....................................................yes
40. I feel left out of things .........................................................yes

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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>41. I have nice hair</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42. I often volunteer in school</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43. I wish I were different</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44. I sleep well at night</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45. I hate school</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46. I am among the last to be chosen for games</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>47. I am sick a lot</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48. I am often mean to other people</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49. My classmates in school think I have good ideas</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50. I am unhappy</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51. I have many friends</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52. I am cheerful</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53. I am dumb about most things</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54. I am good-looking</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55. I have lots of pep</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>56. I get into a lot of fights</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57. I am popular with boys</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>58. People pick on me</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>59. My family is disappointed in me</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60. I have a pleasant face</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>61. When I try to make something, everything seems to go wrong</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>62. I am picked on at home</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>63. I am a leader in games and sports</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>64. I am clumsy</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65. In games and sports, I watch instead of play</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>66. I forget what I learn</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>67. I am easy to get along with</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>68. I lose my temper easily</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>69. I am popular with girls</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70. I am a good reader</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>71. I would rather work alone than with a group</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>72. I like my brother (sister)</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>73. I have a good figure</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>74. I am often afraid</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75. I am always dropping or breaking things</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>76. I can be trusted</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>77. I am different from other people</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>78. I think bad thoughts</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>79. I cry easily</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80. I am a good person</td>
<td>......................................................</td>
<td>yes/no</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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