

INDEPENDENCE LEVEL OF PARAPLEGIC MEN
AND PERCEIVED BODY IMAGE

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
TABLE OF CONTENTS	iv
LIST OF TABLES.	vi
 Chapter	
1. INTRODUCTION	1
Problem of Study	2
Justification of Problem	2
Theoretical Framework	4
Assumptions	7
Hypothesis	7
Definition of Terms	8
Limitations	9
Summary	10
2. REVIEW OF LITERATURE	11
Body Image	11
Development of Body Image	14
Sexual Differences in Body Image	15
Body Image Alterations	17
Body Image Disturbances in Paraplegia	20
Independence in Paraplegics	26
Measuring Activities of Daily Living	28
Nursing Interventions	30
Summary	32
3. PROCEDURE FOR COLLECTION AND TREATMENT OF DATA	35
Setting	35
Population and Sample	37
Protection of Human Subjects	38
Instruments	30
Data Collection	42

	Page
Treatment of Data	45
Summary	45
4. ANALYSIS OF DATA	47
Description of Sample	47
Findings	55
Summary	58
5. SUMMARY OF THE STUDY	60
Summary	60
Discussion of Findings	62
Test of the Hypothesis	62
Body Image	63
Independence	64
Conclusions and Implications	65
Recommendations	67
APPENDIX A	69
APPENDIX B	71
APPENDIX C	73
APPENDIX D	76
APPENDIX E	79
APPENDIX F	83
APPENDIX G	88
REFERENCE LIST	90

LIST OF TABLES

Table	Page
1. Age Ranges of Subjects	48
2. Injury Levels of Subjects	49
3. Types of Trauma Causing Paraplegia	50
4. Time Since Injury for Paraplegics	51
5. Marital Status of Paraplegics	51
6. Occupations of Paraplegics	52
7. Hobbies of Paraplegics	53
8. Activities of Daily Living Scores of Paraplegics	54
9. Body-Cathexis Scores of Paraplegics	55

CHAPTER 1

INTRODUCTION

The rehabilitation of the spinal cord injured patient is a complex, multidisciplinary process which stresses existing abilities and emphasizes the highest degree of independence possible. A successful rehabilitation program ultimately depends on psychological adaptations. The spinal cord injured patient must adapt to an altered body image while striving to become functionally independent. The rehabilitation nurse is involved with care planning and patient teaching, especially for self care activities and knowledge about the disability. The nurse may assess the patient's body image to determine the psychological adaptation, and therefore plan for more appropriate times to introduce self care activities. The investigation of the relationship between the body image of the spinal cord injured patients and their level of independence is significant in planning nursing interventions aimed at increasing the patient's independence as well as directed toward assisting the patient to develop a more positive body image.

Problem of Study

The research study was narrowed to this question: Is there a relationship between the independence level of male paraplegics and their perceived body image?

Justification of Problem

The National Paraplegic Foundation estimated that there are between 125,000 and 200,000 persons with spinal cord injuries in the United States, with 12,000 new cases annually (Stryker, 1977). The major causes of spinal cord injury are automobile and motorcycle accidents, industrial accidents, gunshot wounds, diving accidents, and football injuries (Carter, 1977). Carter (1977) documented that spinal injuries in males occur four to five times more frequently than spinal injuries in females. The initial hospitalization period is 129 days for a quadriplegic and 106 days for a paraplegic at an estimated cost of \$150 per day (Statistical Report, 1975).

Body image changes in plegia are documented in clinical research studies dealing with emotional and physical changes. Wachs and Zaks (1960) and Winston, Hirschenfang, Fine, and Stern (1969) found that the predominant emotional changes due to body image disturbances are feelings of forced dependency, immobility, denial,

anxiety, and embarrassment and negativism toward the loss of bowel and bladder control. Fink and Shontz (1960), Evans (1962), and Conomy (1973) concluded that physical changes affecting body image appear to be associated with diminished stimuli from the peripheral and central nervous system leading to changes in perception of body space, posture, movement, semantic bulk, and size.

Throughout the rehabilitation process, the rehabilitation team strives to minimize the physical dependency as much as possible by teaching the patient new ways of performing various activities of daily living. The nurse plays a major role in increasing the independence level of the patient through teaching the patient about activities of daily living, medications, prevention of complications, and management of bowel and bladder function. As independence and personal responsibility begin to increase, a new body image develops.

The nurse is a key person in the rehabilitation of the spinal cord injured patient. Through nursing interventions, the patient becomes more independent and better able to return to the community. Besides physical adaptation, the spinal cord injured patient must adjust to the disability psychologically. Body image is one aspect of

the psychological adaptation to spinal cord injury. By measuring body image and independence levels, the study seeks to describe whether there is a relationship between body image and independence level in paraplegics within a rehabilitation setting. Nurses will then be able to determine the appropriate time to plan interventions aimed at facilitating the patient's independence. As nurses understand the body image alterations of paraplegics, they can initiate nursing measures to assist the patient in the physiological, psychological, and sociological adjustment to the disability.

Theoretical Framework

Schilder (cited in Kolb, 1959) defined the body image as

that picture or schema of our own body which we form in our minds as a tridimensional unity involving interpersonal, environmental, and temporal factors. (p. 750)

Schilder (1950) stated that there is nothing definite or static about the perception of the body image. His theory stresses that the development of the body image is continuous, active, and affected by physiological, psychological, and sociological factors (Ritchie, 1973).

Schonfeld (1964) classified these body image factors as follows:

(1) the actual sensory experiences of the individual in regard to his body through the integration from earliest infancy to multiple perceptions, particularly visual and tactile; and the actual subjective perception of the body, both as to appearance and ability to function.

(2) the internalized psychological factors arising from individual's personal and emotional experiences.

(3) the sociological factors, namely how his parents and society react to individual and his interpretation of their reactions.

(4) attitudes toward the body derived from the individual's experiences, perceptions, comparisons, and identifications with the bodies of other persons. (p. 494)

The experience of the body is based upon visual and tactile impressions. The body image can, therefore, be disturbed by lesions which destroy or impair tactile sensations and by lesions which destroy or impair visual sensations. Both the cortical and the peripheral nervous system have an important part in the formation of the postural model of the body. In order to build body image the person must know the location of the body parts (Schilder, 1950).

Schilder theorized that the perception of the bodies of others and of their expression of emotions is as primary as the perceptions of our own body and its emotions and expressions. (Ritchie, 1973, p. 147)

Ritchie (1973) further stated

that our own body and the body images of others are primary data of experience, and that there is from the beginning a very close connection

between the body image of ourselves and the body image of others. (p. 148)

In summary, Schilder (1950) stated that the body image does not exist per se, but is an active and dynamic part of the world. He has shown that there is a continual interchange between the body image and other's body images, and that persons are never completely contented with their body image. He also identified the tendency to destroy the body image, but suggested that such destruction is essential to the reconstruction of the body image (Ritchie, 1973). This theory is similar to Werner's (1957) suggestion that regression is but a form of development, and that there cannot be progression without regression. Schilder (1950) stated that "the experience of one's own body is the basis for all other life experiences" (p. 51).

This study utilizes Schilder's (1950) theory of body image to explain the altered perception of body image experienced by paraplegics. This alteration is due to an impairment in their tactile sensations and their proprioceptive abilities. The researcher sought to provide evidence that as the paraplegic gains independence his perceived body image will improve or become more positive.

Assumptions

For this study, the following statements were assumed:

1. Body image is an actively changing and dynamic process.
2. Body image is affected by physiological, psychological, and sociological factors.
3. The body is constantly undergoing change and a time lag exists in the person's awareness of the change.
4. Spinal cord injuries lead to an alteration in body image.
5. Body image disturbances arise when there is a failure to accept and adapt to the body as it is. There is a conflict between the way the body is now perceived and the way the person pictures his body mentally (Murray, 1972b).

Hypothesis

For the purposes of this study, the following hypothesis was tested:

The higher the independence level of male paraplegics as measured by the Activities of Daily Living (ADL) Rating Scale, the more positive their body image as measured by the Body-Cathexis Scale.

Definition of Terms

For this study, the following terms were defined conceptually and operationally:

Body Image

Conceptual definition: "The picture of our own body which we form in our mind, that is to say the way in which the body appears to ourselves" (Schilder, 1950, p. 11).

Operational definition: The degree of feeling of satisfaction or dissatisfaction with the various parts or processes of the body as determined by the Body-Cathexis Scale.

Level of Independence

Conceptual definition: The degree to which a person can carry out those activities that are generally conducted by a normal person in his daily routine (Hirschberg, Lewis, & Vaughan, 1976).

Operational definition: A numerical score on the ADL Rating Scale in which scores from 0 to 131 will determine high independence level and scores from 132 to 264 will determine low independence level.

Paraplegia

Conceptual definition: Sudden traumatic complete transection of the spinal cord at the thoracic or lumbar region diminishes the afferent and efferent transmission of the impulses involving the areas of the body below the level of the injury (Boroch, 1976).

Operational definition: Adult patients whose disability results from trauma (auto and motorcycle accidents, industrial accidents, gunshot wounds, diving accidents, athletic accidents) to the spinal cord with residual loss of sensation and motor function below the level of the injury.

Limitations

Variables which may have influenced the conclusions of the study were:

1. Sex and age.
2. Ethnic background.
3. Economic status.
4. Use of one geographic area.
5. Type of trauma.
6. Time since injury.
7. Marital status.
8. Occupation.

9. Sample size.
10. Religion.
11. Pre-injury hobbies.

Summary

Schilder's (1950) theory of body image was the basis for determining if there was a relationship between independence level of paraplegic men and their perceived body image. Previous research documents the alterations in body image that paraplegics experience. Rehabilitation literature cites the importance of teaching the patient to attain the highest degree of independence in order to successfully function in the community. The relationship between body image and independence level in paraplegics has not been documented in the literature. The data obtained in this study will direct nurses in planning effective interventions toward increasing the paraplegic's independence as well as increasing the paraplegic's feelings about his body.

CHAPTER 2

REVIEW OF LITERATURE

Research studies pertaining to the broad concept of body image are numerous. Literature reviewed for this study include selected aspects of body image, such as general definitions of body image, development of body image, and sexual differences in body image. Other major areas examined are the general concepts of body image alterations and body image disturbances in paraplegia. Finally, the concept of independence in paraplegics is discussed with a review of Activities of Daily Living (ADL) scales. Research linking body image and independence in paraplegics was not identified after a literature search.

Body Image

Schilder (1950) defined body image as "the picture of our own body which we form in our mind, that is to say the way in which the body appears to ourselves" (p. 11). Body image is based upon perceptions derived from all senses, especially visual and tactile impressions (Schilder, 1950). Although body image has a physiologic basis, it is composed of physical, psychologic,

and social experiences. Thus, the body image not only includes the individual's personal and psychologic investment in his body and its parts, but also has a sociologic meaning for both the individual and society (Schilder, 1950).

Schonfeld (1963) stated that body image is a complicated constellation of elements, both conscious and unconscious. Four factors comprising body image are: (a) actual subjective perception of the body; (b) internalized psychological factors arising from individual's personal-emotional experiences; (c) sociological factors, such as how parents and society react to person's interpretation of their reactions; and (d) ideal body image formulated by the individual's attitudes toward body derived from identification with bodies of other persons (Schonfeld, 1963).

Gorman (1969) identified the body image as an interaction between physical and emotional stimuli. An interaction between perceptual pool and experimental pool occurs.

The perceptual pool consists of all our present and past sensory experiences, and the experimental pool consists of all our experiences, affects, and memories. (Gorman, 1969, p. 8)

Individuals in the American culture tend to idealize their body image and think of themselves as clothed, not nude

(Gorman, 1969). The body image is more than the body, its organs, and the devices attached to the body. It can grow to include tools, weapons, vehicles, and objects freely and frequently used in close relationship to the body (Gorman, 1969).

Fisher (1964) explained the body image as the psychological experience and focuses on the individual's feelings and attitudes toward the body. It is concerned with the individual's subjective experience with the body and manners in which the person has organized these experiences (Fisher, 1974). Fisher and Fisher (1964) proposed "the body boundary concept" and indicated that a person with definite body boundary is more likely to assign prominence to body exterior as compared to body interior sensations. Results from a study conducted by Fisher and Cleveland (1968) provide evidence that there is considerable variation in the firmness of definiteness persons assign to their body boundaries. Some individuals view their bodies as distinctly bounded with a high degree of differentiation from non-self objects. Other persons view their bodies as lacking separateness from the outside world (Fisher & Cleveland, 1968).

Critchley (1968) proposed the term "corporeal awareness" to replace body schema and body image. Body image

has three formative factors: (a) visual which includes information from self-inspection of our bodies and information from visual observation of other persons; (b) tactile which comprise the proprioceptive impulses from joints and muscles, and the exteroceptive impulses from touch, pain, and thermal messages; and (c) labyrinthine which is the vestibular sense reporting changes of position, direction, and acceleration (Critchley, 1968).

Development of Body Image

The body image begins to develop at birth with feelings of comfort, pain, and hunger and continues through the complete life span. The changes span time from when the infant begins to separate self from mother by discovering hands and feet, through the aging process where changes occur in the posture, body build, and skin texture. The individual incorporates these changes gradually into their body image. Throughout this time, the body image is the product of relevant experiences which serve to organize and guide behavior (McDaniel, 1969).

Kolb (1959) believed that the individual organizes the body image through the integration of multiple perceptions, beginning with the earliest stage of development. Tactile and kinesthetic sensations are primary in defining

body image; and visual, olfactory, auditory, thermal, and pain stimuli are secondary sensations (Kolb, 1959). In addition to modifications resulting from the developmental and sensory influences, the character or quality of body image is also a function of the socialization experiences of the individual (Kolb, 1959).

In the American culture, much emphasis is placed upon the ideal adult figure. Kurtz (1970) reported that large, thin women rated their bodies as best liked by self, while broad-hipped, big breasted women rated themselves as most potent. Men felt that large size was desirable (Secord & Jourard, 1955). In the study by Kurtz (1970), large muscular men rated their bodies as best liked by self and as more active than other body types. For men, tallness means dominion, self-confidence, leadership, and power (Kurtz, 1970).

Sexual Differences in Body Image

Fisher (1964) found a significant number of differences in body image between the sexes. Women have a more clearly defined, articulated, and stable body concept than men and this begins in childhood (Fisher, 1964). The difference between male and female body images seems related partly to different anatomic structure and body functions but also to the contrasts between males and

females and their styles of life and cultural roles (Fisher, 1964).

Average women feel more secure about their body boundaries than the average men. Women are more open to awareness of their bodies and more likely to feel comfortable tuning in on their body sensations (Fisher, 1974). Women are more likely than men to perceive alterations in the face region, perhaps because of social significance attributed to the female face (Fisher, 1964). Women seem to have a more definite sense of body boundary than men. The female also devotes more attention to her body and arrives more quickly at a realistic concept of her body (Fisher, 1964). The role of the woman is more explicitly identified with her body and its functions; a woman more nearly equates self with her body (Fisher, 1964).

Research studies by Fisher (1964) provided evidence that man's role and status are defined in terms of his achievement rather than in terms of body attributes. Physical strength and handsomeness are admired in men. Male athletic prowess is rewarded with praise and honor. For man, work and status are the prime definers of who he is and the amount of respect he will receive (Fisher, 1974). Most prestigious male occupations seem to be

built around intellectual sharpness and cleverness.

Fisher (1974) reported that men are more disturbed when they get the feeling that something has bypassed their body boundary and gained access to their interior.

The scientific data that have accumulated leave no doubt that men and women experience their bodies in radically unlike ways. The difference between them are not only obvious anatomical ones but also those of more general nature, in the role that body plays in building identity and judging life events. (Fisher, 1974, p. 62)

Body Image Alterations

Body image disturbance arises when there is a failure to accept the body as it is and adapt to it; there is a conflict between the way the body is now perceived and the way the person pictures his body mentally. (Murray, 1972b, p. 697)

People invest emotions in their body and its well-being and feel disturbed and anxious, if external or internal changes occur. Any alteration in the body is a disturbance of one's integrity and threatens one's self.

Leonard (1972) identified fears experienced by the disabled person, as fear of death, incapacitation, pain, abandonment, loss of self esteem, and disturbance of interpersonal relationships. The more significant the change in the body, the more threatened is the person (Roberts, 1978).

Major alterations in the body cause a crisis (Roberts, 1978). As a result of these changes, the person's body image must go through a re-organization process. The person will progress through the phases of crisis in an attempt to re-integrate the body image (Murray, 1972a).

Lee (1970) explored through a conceptual frame of reference the phenomena that occur when a person encounters a crisis that results in a change of bodily appearance. The phases through which persons move in their emotional reactions to trauma are identified as: impact, retreat, acknowledgement, and reconstruction.

The impact phase represents the initial encounter with the critical situation and renders the person in a state of shock. The body alteration is perceived as a threat. The loss of bodily control creates a loss of customary control of self, physical environment, time, and contacts with others. The greatest impact is felt by the adult who has spent many years developing the body image and self concept. The person experiences feelings of numbness, strangeness, and unreality. Behaviors exhibited by the person include despair, discouragement, and passive acceptance. The task during this phase is to regain homeostasis. The person's

energies are turned inward in an attempt to cope with the changes.

During the retreat phase, the person becomes aware of the alteration. As anxiety increases the person's immediate reaction is to run but is prevented by their immobility. The person emotionally retreats from the problem thus providing the opportunity to mourn the loss. Denial permeates the atmosphere at this phase of the adjustment. Behavior which indicates denial of the disability may range from indifference to euphoria. This phase allows the person to reorganize the body image in an attempt to acknowledge the loss.

The third phase is acknowledgement, the mourning period. The individual experiences loss of individuality and uniqueness. Person begins to discuss the details or events of the injury. The task in this phase is that the person must acknowledge the alteration, which he equates with the loss of body image. The person goes into a mourning period for the loss he experiences. Although the person's perception of body image is lost or changed, it still persists and this sensation gives rise to strange experience of self-not-self (Lee, 1970). Withdrawal into self results and is evidenced by the person's isolating himself from others through a variety of defenses. The

person's feeling of low self esteem causes this withdrawal from life.

As the person advances to the reconstruction phase, the need to mourn is replaced by the decision to try new approaches to living. The person breaks through the self-inflicted limits of the grieving process and puts into action the beginning of a momentum for new and satisfying experiences. The task is to reintegrate the positive forces to a sufficient degree to induce attempts at newer approaches to life. "The reintegration of self is the process of melding the self-not-self into a new experience of self" (Lee, 1970, p. 586). A new sense of worth results which is very different from the old sense of well being. The person reaches self-acceptance. Social values are repatterned, so that new behaviors aimed at achieving approval from others are formed. Technical procedures and devices aid the reintegration process by removing limits to personal freedom and broadening paths to success through competency and accomplishment.

Body Image Disturbances in Paraplegia

Mueller (1962) believed that the self concept influences whether a person will seek, cooperate with, participate in, or successfully utilize rehabilitation services.

The person with a spinal cord injury has moved from a state of independence to one of almost helpless dependence. Physically regressed to the level of the infant, the person has become dependent upon others for movement, nourishment, and bodily care. The spinal cord injured person may experience three types of pain: (a) root pain which is sharp, excruciating, and radiates along the distribution of the nerve roots; (b) burning pain which is poorly localized and diffuse; and (c) visceral pain which is dull, poorly localized and has a sickening quality (Mueller, 1962). Initial psychological reactions are temporary depression, dependency, autistic thinking (belief that the person will recover lost function and walk again sooner or later), and frustration (Mueller, 1962).

The long periods of withdrawal, depression, and the lack of interest following spinal cord injury are due to the great amount of psychic energy needed for reintegration process (Berger, 1952). The body image has to be reorganized so that the useless member of the body can somehow fit itself into the individual's image of self (Grayson, 1952). Grayson (1952) compared the body image to a jigsaw puzzle in which the disability of the person is represented by a grossly deformed part of the puzzle.

The problem is to put the puzzle together and fit the deformity into the picture. The struggle is painful and not readily accomplished, since the ego unconsciously makes an effort to reject the deformity (Grayson, 1952).

The immediate effects on the self concept of irreversible paralysis and loss of sensation below the level of injury are:

Normal bowel and bladder control is lost and the bladder empties through a tube which travels down the leg to a plastic bag strapped to the calf and filled with yellow urine. In addition, voluntary control of the anal sphincter has been lost and fecal incontinence can occur without warning. . . . Orgasm in the physical sense has been lost and for the male psychically controlled erections cannot occur in spite of intense arousal. Spasticity of the lower body is a daily phenomenon and periodic spasms of the legs may cause them to flex at the knees and hips or scissor together. Once rounded and full areas of the body are not replaced by bony prominences. . . . The ability to stand and walk is lost and the environment is viewed from about four feet above the ground. Conversation is carried on with erect people by tilting back the head and looking up. Self-consciousness about one's own body may lead some to avoid sexual contact altogether. For others the alteration of the body is so profound as to call into question whether or not sexual expression can even remotely resemble previous sexual patterns. (Teal & Athelstan, 1975, p. 265)

Kinash (1978) identified major concerns and needs of spinal cord injured persons. Honest and open communication included the need to talk and be listened to, the need for repeated reassurance, and the need for specific

explanations about what is happening. The need for humor and the ability to laugh with others was identified as important. Another vital need was to be treated as an individual, not a category, such as quadriplegic or paraplegic. Feelings experienced by the spinal cord injured persons were fear, inferiority, inadequacy, powerlessness, lack of self worth, and utter despair. Most persons were very concerned about the potential for sexual activity.

Clinical research studies regarding the body image changes in paraplegia are essentially dearth. Five of the more recent studies are reviewed. The literature review found no research studies linking body image with independence levels in paraplegia.

Wachs and Zaks (1960) reported that spinal cord injured persons are faced with a severe psychological loss which tends to undermine their self esteem and self concept as an integrated individual. The experimental study utilized 30 male traumatic spinal cord injured patients and 30 male patients with chronic diseases. Utilizing the Draw-A-Person test, they found that the individuals with paralysis exhibited a tendency toward more anxiety or tension and a greater dependency on the female figure in their environment.

Evans (1962) stated that body image is composed of perceptual images derived from immediate sensory experience, and memory images derived from previous knowledge. The perceptual image is dependent on two sources of sensory data: those providing information from outside the integument (mainly visual and tactile) and those providing information from within the body (tactile and kinaesthetic sensations). The pilot study found that the predominant physical sensations relate to adjustment normally applied to pain, to temperature changes, and to feelings of constriction of the affected extremity. He found no distortion of the size and shape or ability to ascertain correct physical position of the limbs.

Arnohoff and Mehl (1963) asked 18 male paraplegics and 20 healthy controls to estimate wheelchair and shoulder widths by adjusting a measuring light in a darkened room. They concluded that paraplegics utilized the wheelchair as a frame of reference for their body image and thus needed body contact with the environment to prevent deterioration. By alleviating or preventing deterioration in the body image through increased and continued use of the body for environmental contact, personality dysfunction may be minimized (Arnohoff & Mehl, 1963).

Winston et al. (1969) studied the emotional adjustment in spinal cord injured patients and found that they demonstrated conflicts about dependency, castration, separation, loss of sphincter control, and exhibitionism. They concluded that the disability causes curtailment of outlets for expression of sexual and aggressive drives and interferes with outlets for previously established patterns of defense.

The study by Conomy (1973) utilized 18 spinal cord injured patients to question them about their body image. Conomy (1973) found that the physical changes in body image deal with disordered perceptions of the body image. The disordered perception of the body in space included the feeling that the lower limbs are floating upward from the bed extended at knees or ankles and slightly flexed at hips. The disordered perception of posture and movement included feelings of tonic incurvation of toes toward the plantar surface and of a bicycling type exercise with repetitive movement occurring at the knees, hips, and ankles. The disordered perception of somatic bulk, size, and continuity included feelings of increased size of feet and legs, and of gaps wherein segments of the limb or trunk seemed missing between parts that could be sensed.

Conomy (1973) advanced four possible theories to explain the body image changes: (a) the zone of traumatic spinal necrosis in the spinal cord acts as a false synapse; (b) there is an alternate route for postural and kinetic information from the lower body to brain areas, possibly the autonomic nervous system; (c) ongoing central nervous system activity at the most distal segment of the intact portion of the spinal cord gives rise to body image distortion; and (d) surviving afferent neurons propagate perceptual information in spinal injury. Sound clinical research still needs to be done to support or reject any of these theories.

Independence in Paraplegics

Rehabilitation is the principal means of reaching the ultimate goal whereby the paraplegic patient accomplishes a reorientation to the disabled state and enters society again as a useful citizen (Freeman, 1949). Henderson (1971) stated that rehabilitation emphasizes the restoration of the individual to optimal functional level in the face of permanent impairment, and the reintegration into daily living and society at optimal level commensurate with the state of disability. A significant part of rehabilitation is modification of behavior to

meet demands imposed by specific disability. It requires learning a new behavior on the part of the patient and management of learning on the part of interdisciplinary rehabilitation team. Nurses are a vital part of the team and are responsible for meeting the specific patient learning needs through a planned program of patient teaching (Henderson, 1971).

The most important aspects of rehabilitation are activities of daily living. Common things which each of us do everyday, such as dressing, bathing, and mobility are the core of rehabilitation (Krenzel & Rohrer, 1972). Before the patient can accomplish these activities, the patient must be able to transfer to and from the bed, the toilet, the bath tub, and the car. The main patient objective is to learn to care for self in the daily routine without dependency on others.

Dinnerstein, Lowenthal, and Dexter (1965) outlined five levels of independence. The highest level is total independence which means that the patient can perform the task with near normal speed and efficiency with or without the use of mechanical devices. The next level is difficulty with independence in which patient can accomplish the task with or without mechanical aid at a slower and less efficient rate. The third level is

supervision in which the patient performs the task but needs instruction or observation by another person. The fourth level is physical help in which the patient does part of the task but must be helped physically in some major way. The lowest level is dependency in which the patient needs complete assistance and is unable to perform any part of the task alone.

Adult paraplegics who are dependent on others for their personal care and mobility are bound to view themselves as a burden. Self esteem will be much heightened when the paraplegic is able once again to care for self (Krenzel & Rohrer, 1972).

Measuring Activities of Daily Living

Dinnerstein et al. (1965) developed the Activities of Daily Living Rating Scale which provides a numerical rating of the patient's ability in 66 different behaviors within 11 areas of functioning. The 11 areas of functioning are transfer from bed, grooming, dressing, wheelchair activities, ambulation, bathroom activities, feeding, care of possessions, interpersonal relations, undressing, and transfer back to bed. This tool has simple instructions and can be utilized by nurses caring for the spinal cord injured patients. The form takes only 15-20 minutes to

complete and it covers all activities important in rating a patient's independence.

Donaldson, Wagner, and Gresham (1973) designed the Unified ADL Evaluation Form which contains all self care and mobility variables commonly used by previous ADL forms. The categories for rating the patient's functional status have definite, objective criteria. The data obtained can be key punched directly from the form and processed by the computer. The form takes from 30-60 minutes to complete depending on the person's knowledge of the patient.

Sarno, Sarno, and Levita (1973) created the Functional Life Scale which provides a quantitative measure of the individual's ability to participate in all basic daily activities. The form is composed of 44 items within five categories. The categories are cognition, activities of daily living, activities in the home, outside activities, and social interaction. For proper administration of this tool, more in-depth training of raters is required. The scale was designed for use with disabled persons who are out of the hospital setting.

Linn (1967) formulated the Rapid Disability Rating Scale for use in research. The scale is short, simple, and based on easily observable data. The form contains

16 items referring mainly to areas of functioning and self care, such as eating, diet, speech, hearing, walking, and dressing. The scale seems more appropriate for older, chronically ill patients and would not discriminate significantly between spinal cord injured patients.

Nursing Interventions

Certain basic principles in the nursing process are applicable to persons who have undergone alterations in body image. Murray (1972b) identified some of the nursing interventions appropriate for assisting the patient through the crisis of body image alterations. To truly understand the uniqueness of the person and apply basic knowledge, it is essential to establish a therapeutic relationship; this begins at the time of the initial contact with the patient. To establish rapport and a therapeutic relationship, the nurse must cope with personal fears, dread, and feelings of anxiety about the meaning of the bodily change. Establishing and maintaining a therapeutic relationship involves a capacity to give of the self to another, and to promote a feeling of security and comfort in the patient. The nurse must trust and respect the self and the patient, and in the process help the patient feel self-respect.

Nursing interventions should be directed to the presenting behavior of the patient. If the person is denying, accept this without reinforcing the denial. Whatever helps the patient feel adequate helps him psychologically to feel less helpless. If possible, follow the patient's suggestions regarding personal routines in care, hygiene, or sequence of care. Listen to and accept the feelings of the patient. People have a way of arriving at solutions for themselves if they are permitted to express their feelings in order to clarify their problems.

Any situation that causes a change in the body image is a crisis and the person will progress through the phases of crisis in an attempt to reintegrate the body image. Nurses, through an understanding of this crisis and through purposeful interventions, can influence positively the outcome of this crisis of altered body image. Self-understanding and a therapeutic nurse-patient relationship, using principles of purposeful communication and crisis intervention, are utilized in the nursing process of assessment, intervention, and evaluation (Murray, 1972b).

Kinash (1978) identified guidelines for nursing interventions focusing on increasing independence in spinal cord injured persons. These patients need repeated

encouragement, and self-determined goals in order to sustain motivation to continue to strive for independence in face of seemingly insurmountable obstacles. They need a well-organized, comprehensive, educational program to help them acquire the special knowledge and skills needed for independent functioning. These patients also need a continuous flow of relevant, accurate information during the illness experience in order to find meaning in events which have happened and to arrive at a new identity based upon feelings of self worth. If patients are to adapt successfully to a disability with life-time implications, they need to experience relationships and activities that promote ego integrity during the illness experience (Kinash, 1978).

Summary

Body image is how one views oneself. It is the picture a person has in his mind of his own body and how it appears to him; it is the total of conscious and unconscious information, feelings, and perceptions about the body as separate from others (Beeken, 1978). With the growth of the individual, in size and shape, and with the evolving capacities for intricate motor activities, the body image is continuously modified (Kolb, 1959).

In the American culture, success, achievement, beauty, and strength have high values, and thus significantly affect self concept and body image. Clinical research studies have documented the significant differences in body image between men and women.

Any alteration in the body, such as a spinal cord injury, causes a disturbance in one's integrity and a threat to one's self. As a result of the change in body, a crisis develops. The four phases include impact, retreat, acknowledgement, and reconstruction (Lee, 1970). The success through each phase depends upon the person's perception of actual alteration, the physiological status of the individual, one's age, the nature of the illness, the duration of the disability, and previous coping mechanisms (Roberts, 1978). The predominant emotional changes due to body image disturbances in paraplegia are feelings of dependency, depression, frustration, embarrassment, negativism, and uncertainty regarding future medical condition and economic status. The physical changes affecting body image in paraplegia appear to be due to diminished stimuli from the peripheral and central nervous system. The disorders are due to changes in perception of body space, posture, movement, somatic bulk, and size and continuity.

In the rehabilitation of spinal cord injured patients, the main objective is to teach the patient to care for self in the daily routine without dependency on others. The paraplegic's forced dependency causes him to view self as a burden and causes a low self esteem. As the paraplegic becomes more independent, a new self concept and body image develop based upon feelings of self-worth. Nurses are a vital part of the rehabilitation team, and are responsible for meeting the specific patient learning needs through planned programs of patient teaching. The nursing interventions focus on assisting the patient through the phases of body image reintegration, and on increasing the patient's level of independence.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

This research study was a descriptive correlational study (Polit & Hungler, 1978). The aim of this study was to describe the relationship between two variables, level of independence and body image in paraplegics. Descriptive correlational studies are less concerned with determining cause and effect relationships than with a description of how one phenomenon is related to another. The data were collected by utilizing the Body-Cathexis Scale and the Activities of Daily Living (ADL) Rating Scale.

Setting

For this study, one setting was utilized in the collection of the data. The setting was The Institute for Rehabilitation and Research (TIIR) which is a non-profit, private rehabilitation center located in the Texas Medical Center in Houston, Texas. The bed capacity is 79 beds, and the average hospital stay for most patients is over 30 days. Some of the rehabilitative

services provided at TIRR include continuous medical and nursing care, physical and occupational therapy, social services, vocational services, respiratory therapy, orthotic services, and outpatient department.

The institute is divided into five patient care units. For this study, patients from four of the units were used. Two of the units are composed of two 7-bed wards, and the other two units are composed of semi-private rooms.

Each spinal cord injured patient at TIRR has a rehabilitation team guiding their care while at the institute. The team is composed of physician, nurse physical therapist, occupational therapist, and social worker. The team meets weekly with the patient to review progress of the past week and to set short and long term goals for the patient's rehabilitation program. As part of the rehabilitation program, spinal cord injured patients attend "Rap Sessions" which are a series of planned, group classes taught by a nurse clinician. The classes cover such topics as skin care, bowel care, urinary care, and nutrition. Before the patient's discharge, the team meets with the patient and the family to make the final plans for the patient's return home. The spinal cord injured patients make return visits to the Outpatient

Clinic at regular intervals for re-evaluation and follow-up treatment.

Population and Sample

The target population for this study consisted of male paraplegics between the ages of 18 and 65 years who were admitted to a rehabilitation center in Houston, Texas. The eligible subject was a male paraplegic whose disability resulted from trauma to the spinal cord with residual loss of sensation and motor function in both lower extremities. The subject was also between the ages of 18 and 65 years, was able to read and write English, and was at least 4 weeks post-injury. The following demographic data were obtained in order to better describe the subjects: sex, age, level of injury, type of trauma, time since injury, marital status, occupation, and pre-injury hobbies.

The sampling technique used was convenience sampling which entailed the use of the most readily available persons for use as subjects in the study. Due to the difficulty in finding a large population of paraplegics, the researcher selected all available eligible subjects from the setting. The sample size was 12 male subjects.

Protection of Human Subjects

Prior to data collection, permission to conduct the study was obtained from the Texas Woman's University Human Research Review Committee (Appendix A), the Graduate School, the agency from which the subjects were obtained (Appendix B), and each individual subject (Appendix D). The subjects were guaranteed anonymity by the use of code numbers instead of names, by the separation of consent forms from the questionnaires, and by the reporting of data as group results.

The researcher discussed the purposes of the study with the nurses on the units and with the physicians who attended the spinal cord injured patients. Then, the researcher asked eligible subjects if they would participate in the study. If the patient seemed interested, the researcher read a printed explanation of the purposes of the study, of what was required of subjects, and of potential risks and benefits to the subjects (Appendix C). The patient was then given a consent form to read which restated the purposes, the methods, and the risks of the study (Appendix D). An opportunity to ask questions was given each subject before deciding to participate or not to participate. The subjects then signed two consent

forms, one for the researcher and one for the patient to retain.

Instruments

The Activities of Daily Living (ADL) Rating Scale (Appendix E) was utilized to measure the independence level of the subjects. The rating scale was designed to obtain a numerical rating of a patient's ability in 66 different behaviors within 11 areas of functioning: (a) transfer from bed, (b) grooming, (c) dressing, (d) wheelchair activities, (e) ambulation, (f) bathroom activities, (g) feeding, (h) care of possessions, (i) interpersonal relations, (j) undressing, and (k) transfer to bed. Within each of the above 11 areas of behavior, 6 activities were listed. Each activity was rated on a 5-point scale as follows:

0--Independent: task accomplished with near normal speed and efficiency.

1--Difficult, but Still Independent: task is difficult or tolerance is limited, but no help is needed.

2--Supervision: patient is told, watched, or instructed when task is done, but no physical assistance is given.

3--Physical Help: part of task is done by another person, or physical assistance is given.

4--Dependent: task is done for the patient.

Each of the six activities of every behavior was scored individually. The scores of the six activities were then added to achieve a total score for that complete behavior. The scores for each of the 11 areas were added to obtain the total ADL score. The most independent patients scored from 0 to 88. The moderately independent patients scored from 89 to 177. The least independent patients scored from 178 to 264.

The ADL Rating Scale was developed by Dinnerstein et al. (1965) as part of a larger, continuing, research program concerning variables influencing rehabilitation outcomes. The scale has been used to rate the aged and chronically disabled patient. The ADL Rating Scale produced a high level of inter-rater reliability ($r = .89$) when applied to a heterogenous group of rehabilitation patients. The scale also reliably indicated the individual differences in change of ADL status, from first admission to a rehabilitation program to rerating two months later. Studies documenting validity were not found. The present form of the rating scale appeared appropriate for situations in which it is desirable to

have a repeatable, reliable, numerical index of ADL status (Dinnerstein et al., 1965).

The second tool utilized was the Body-Cathexis (B-C) Scale (Appendix F) developed by Secord and Jourard (1953). Body image was appraised by asking the subject to indicate on a scale the strength and direction of feelings which the subject had about each of the various parts or functions of the body. The scale consisted of a listing of 46 body parts and functions followed by the numbers 1 through 5. The subject encircled the number which best represented his feelings according to the following scale:

- 1--Have strong feelings and wish change could somehow be made.
- 2--Do not like, but can put up with.
- 3--Have no particular feelings one way or the other.
- 4--Am satisfied.
- 5--Consider myself fortunate.

The numbers for the body parts and functions were added together to obtain a total score. The persons who were most satisfied with their body received total scores from 170 to 230. The persons who were moderately satisfied with their body received total scores from 108 to

169. The persons who were least satisfied with their body received total scores from 46 to 107.

The Body-Cathexis Scale has been used with male and female college students (Secord & Jourard, 1953) and with male myocardial infarction patients (Billie, 1977) to measure body image. The split-half reliability of the scale was found to be satisfactory ($\underline{r} = .81$) by Secord and Jourard (1953). Feelings about the body are commensurate with feelings about the self was supported by significant correlations ($\underline{r} = .58$ for men and $\underline{r} = .66$ for women) between the body-cathexis and the self-cathexis parts of the scale (Secord & Jourard, 1953).

Data Collection

Before the collection of data started, the researcher met with the appropriate people at TIRR. The Behavioral Ecology Department provided the guidelines and direction for conducting research at TIRR. Then, the researcher met with the nursing administration to explain the purposes of the study and to elicit cooperation from the nurses. Next, the researcher communicated with each physician who worked with spinal cord injured patients and obtained their verbal permission to use their patients in the study. Finally, the investigator discussed the

research study with the nurses on each patient care unit.

The patient census was reviewed by the researcher in order to determine possible subjects, and then charts were examined to obtain the target population. The researcher discussed the study with potential subjects, and those who agreed to participate signed consent forms. The researcher presented the Body-Cathexis Scale to each subject individually, usually at the patient's bedside. The researcher reviewed the Body-Cathexis Scale with each subject to insure that the subject understood the five categories rating their feelings, and that the subject knew to answer every item only once. Most subjects verbalized an understanding of the instructions. Several subjects were unsure about the meaning of certain words, such as elimination, energy level, exercise, and trunk. These words were explained by the researcher in more simple terms. The subject was left alone to complete the form and then the researcher returned to collect the form. The time required to complete the form varied from 10 to 25 minutes. Each completed form was assigned a code number and the signed consent forms and the questionnaires were kept in two separate folders. Each subject who expressed an interest in the results of the study

was informed that a copy of the completed research study would be filed in the TIRR library.

The nurse (Registered Nurse--RN or Licensed Vocational Nurse--LVN) who had cared for the subject for at least 3 days and had general knowledge of the patient's activity level was asked to complete the ADL Rating Scale on each subject. The researcher reviewed the form with each nurse and provided an opportunity to ask questions about the form. The nurse usually completed the form on the unit during regular working hours and required an average of 15 minutes to complete. Most nurses commented that the form was easy to understand and fill out, and was not too lengthy. The researcher then collected the coded ADL Rating Scale forms from the participating nurses.

The researcher tabulated each subject's body image score from the completed Body-Cathexis Scale. The subjects with the most positive body image scored 230, and subjects with the least positive body image scored 46. Then, the researcher tabulated each subject's level of independence score from the ADL Rating Scale completed by the nurses. The most independent subjects scored 0, and the most dependent subjects scored 264.

Treatment of Data

This descriptive correlational study produced ordinal data, scores for level of independence and scores for body image. The statistical treatment of the data included grouped frequency distributions, measures of central tendency, and the correlation coefficient, the Spearman rho. Since the scores for the level of independence and the scores for body image were ordinal data, the Spearman rho was utilized to describe the relationship between independence level in paraplegics and their perceived body image. The Spearman rho was calculated to test the hypothesis. After arriving at the value of rho, the level of significance for the null hypothesis was set at .05.

Summary

This descriptive correlational study was conducted to gather data relating the levels of independence and the perceived body image of paraplegics. The setting was a rehabilitation center in Houston, Texas. A convenience sample of 12 male paraplegics who met the delimitations of the study agreed to participate with informed consent. Each subject completed a Body-Cathexis Scale to rate their body image. A nurse knowledgeable about the

subject's activity level completed the ADL Rating Scale for each subject to obtain an independence score. The investigator tabulated each form and obtained a body image score and an independence score for each subject. The data were organized and statistical treatment was applied. To test the hypothesis, the Spearman rho was computed, and the alpha level of significance was set at .05.

CHAPTER 4

ANALYSIS OF DATA

This descriptive correlational study was conducted to investigate the relationship between the level of independence and the perceived body image of paraplegics, who were patients at a rehabilitation center. Data were collected through the use of the ADL Rating Scale and the Body-Cathexis Scale. Each subject was between the ages of 18 and 65 years, able to read and write English, and at least 4 weeks post-injury.

The researcher obtained a sample size of 12 male subjects who completed the Body-Cathexis Scale in order to measure body image. The staff nurse participated in the study by rating the subject's independence level using the ADL Rating Scale. Each subject had two scores calculated, the body image score and the independence score. As the body image score increases, a more positive body image is denoted. As the ADL score decreases, the subject is defined as being more independent.

Description of Sample

The sample consisted of 12 male paraplegics whose disability resulted from trauma to the spinal cord with

residual loss of sensation and motor function in both lower extremities. The subjects were between the ages of 18 and 65 years, could read and write English, and were at least 4 weeks post-injury. The demographic data obtained from the subjects included: age, level of injury, type of trauma, time since injury, marital status, occupation, and pre-injury hobbies.

Due to the difficulty in finding a large population of paraplegic subjects, the researcher selected all available eligible subjects from the setting. The sample size was 12 male subjects.

The subjects ranged in age from 19 to 59 years. The mean age for the paraplegics was 34.1 years. Table 1 outlines the complete data concerning the age ranges of the subjects.

Table 1
Age Ranges of Subjects

Years	Subjects
19-25	4 (33.4%)
26-32	3 (25%)
33-39	0
40-46	3 (25%)
47-53	1 (8.3%)
54-60	1 (8.3%)

n = 12

All of the subjects were paraplegics with either thoracic or lumbar injuries (Table 2). There were 10 subjects with thoracic injuries and 2 subjects with lumbar injuries.

Table 2
Injury Levels of Subjects

Level of Injury	Subjects
<u>Thoracic</u>	
1-4	2 (16.7%)
5-8	5 (41.6%)
9-12	3 (25%)
<u>Lumbar</u>	
1-4	2 (16.7%)

n = 12

All of the subjects experienced trauma which damaged their spinal cord causing paraplegia. Six categories of trauma were identified for this study (Table 3). Motor vehicle accidents (MVAs) included automobile, truck, and motorcycle accidents, and accounted for five injuries. Industrial accidents caused plegia in three subjects. Gunshot wounds (GSWs) accounted for three injuries. No

diving accidents or athletic injuries were found. One subject reported a helicopter accident as the cause of his injury.

Table 3
Types of Trauma Causing Paraplegia

Trauma	Subjects
MVAs	5 (41.7%)
Industrial accidents	3 (25%)
Gunshot wounds	3 (25%)
Diving accidents	0
Athletic injuries	0
Others	1 (8.3%)

n = 12

The months since injury for the subjects ranged from 1 month to 136 months. The mean time since injury for the male paraplegics was 33.5 months. Fifty percent of the subjects were injured for 6 months or less. Thirty-three percent of the subjects were injured for more than 4 years. Table 4 outlines the data concerning time since injury.

Table 4

Time Since Injury for Paraplegics

Months	Subjects
1-6	6 (50%)
7-12	2 (16.7%)
>48	4 (33.3%)

n = 12

The marital status of the subjects was identified in Table 5. Twenty-five percent of the subjects were single. Fifty percent of the subjects were married. Twenty-five percent of the subjects were divorced. None of the subjects were widowed.

Table 5

Marital Status of Paraplegics

Marital Status	Subjects
Single	3 (25%)
Married	6 (50%)
Divorced	3 (25%)
Widowed	0

n = 12

Occupational status for the subjects were identified in Table 6. Seventy-five percent of the subjects reported blue collar occupations, such as construction work, maintenance work, office work, sales, truck driver, and iron work. Eight percent of the subjects reported being full-time students. Seventeen percent stated that they were unemployed.

Table 6
Occupations of Paraplegics

Occupations	Subjects
Blue collar	9 (75%)
Students	1 (8.3%)
Unemployed	2 (16.7%)

n = 12

Pre-injury hobbies for the subjects were reported in Table 7. Four main categories emerged from the hobbies identified. Outdoor activities and sports accounted for 33.3% of the hobbies. Thirty-three percent of the subjects identified fixing and racing automobiles, trucks, and/or motorcycles. Seventeen percent preferred indoor activities, such as cooking,

reading, and electronics. Seventeen percent of the paraplegics stated that they had no hobbies.

Table 7
Hobbies of Paraplegics

Hobbies	Subjects
Outdoor activities and sports	4 (33.3%)
Autos, trucks, and motorcycles	4 (33.3%)
Indoor activities	2 (16.7%)
None	2 (16.7%)

n = 12

Each subject's independence level was rated and given an ADL score. As the score decreased, the subject was rated as more independent. The subjects who were most independent scored from 0 to 88. The subjects who were moderately independent scored from 89 to 177. The subjects who were least independent scored from 178 to 264. The ADL scores ranged from 9 to 205, with a mean score of 88.1. Group frequency distributions were utilized to describe the ADL scores in more detail (Table 8). The majority (58%) of the subjects scored within the most dependent class (0 to 88), with 17%

scoring in the moderately independent group (89 to 177), and with 25% of the subjects rated within the least independent group (178 to 264).

Table 8
Activities of Daily Living Scores
of Paraplegics

Score Class	Subjects
Most independent (0-88)	7 (58.3%)
Moderately independent (89-177)	2 (16.7%)
Least independent (178-264)	3 (25%)

n = 12

Each subject was given a body-cathexis score to rate his perceived body image. As the score increased, the subject was said to have a more positive body image. The subjects who were least satisfied with their body scored from 46 to 107. The subjects who were moderately satisfied with their body scored from 108 to 169. The subjects who were most satisfied with their body scored from 170 to 230. The body-cathexis scores ranged from 148 to 233, with the mean score of 171.8. Group frequency distributions were utilized to report the body

image data in more detail (Table 9). The majority (58.3%) of the subjects scored within the most satisfied with their body group (170-230), and the other 41.7% of the subjects scored within the moderately satisfied with their body group (108-169).

Table 9
Body-Cathexis Scores of Paraplegics

Score Class	Subjects
Least satisfied (46-107)	0
Moderately satisfied (108-169)	5 (41.7%)
Most satisfied (170-230)	7 (58.3%)

n = 12

Findings

The null hypothesis for the study was that there is no significant relationship between the independence level and the perceived body image in male paraplegics. To determine the correlation between ADL scores and body-cathexis scores, the subject's paired scores were entered into the computer, and the Spearman rho was computed (Appendix G). The results of the Spearman rho was

$r_s = -.653$. To determine the significance of $r_s = -.653$, the subject's F was determined. The results of the analysis were $.95 F_{1,10} = 7.425$, and $p < .05$ ($p = .021$). The null hypothesis that there was no relationship between the ADL scores and the body-cathexis scores in male paraplegics was rejected. There was a significant negative correlation between the ADL and body-cathexis scores of the male paraplegics. The lower the ADL score, the more independent the paraplegic was. The higher the body-cathexis score, the more satisfied was the paraplegic with his body. The results show a negative correlation between ADL and body-cathexis scores because the ADL scores decrease as the body-cathexis scores increase. Therefore, the research hypothesis that the higher the independence level of male paraplegics as measured by the ADL Rating Scale, the more positive their body image as measured by the Body-Cathexis Scale was supported.

Using the computer, an equation was formulated to predict body image scores. The equation was "BCS = $186.538 + (-.1679 \times \text{ADL score})$." Using this equation, one can explain 42.6% of the variation in the dependent variable, body-cathexis score given the ADL score.

After the data collection was completed, the researcher computed a multiple regression using two

additional variables, age and time since injury. The researcher was interested in determining whether age and time since injury affected the relationship between independence and body image. The age range for the subjects was extremely wide from 19 to 59 years. The months since injury also had a wide range from 1 to 136 months. Correlations were computed between body-cathexis scores and age, and between body-cathexis scores and time since injury. The results of the Spearman rho for body-cathexis scores and age was $r_s = -.113$. To determine the significance of $r_s = -.113$, the subject's F was determined. The results of the analysis were $.95 \underline{F} 2,9 = 3.443$, and $p > .05$ ($p = .078$).

The results of the Spearman rho for body-cathexis scores and months since injury was $r_s = -.099$. To determine the significance of $r_s = -.099$, the subject's F was determined. The results of the analysis were $.95 \underline{F} 3,8 = 2.103$, and $p > .05$ ($p = .179$). The variables age and time since injury were not significant at the .05 alpha level and had little effect upon the relationship between independence level and body image.

Summary

This study was conducted in order to describe the relationship between independence level and perceived body image in male paraplegics. The mean age for the subjects was 34 years. The paraplegic sample revealed that most of the injuries were to the thoracic vertebrae and were due mainly to MVAs, GSWs, and industrial accidents. The months since injury varied in that half of the subjects were injured 6 months or less, and one-third of paraplegics were injured over 4 years. The marital status of the subjects included half married and the other half single or divorced. The occupations identified were mostly blue collar. The paraplegic sample described their main hobbies as outdoor activities and sports, cars and motorcycles, and indoor activities. The mean ADL score for the subjects was 88.1, and the mean body-cathexis score was 171.8.

To test the hypothesis, the ADL scores of the subjects were compared to the body-cathexis scores of each subject by using the Spearman rho. The correlation coefficient (Spearman rho, $r_s = -.653$) was significant at the .05 alpha level. Therefore, the research hypothesis that the higher the independence level of male paraplegics as measured by the ADL Rating Scale, the more positive

their body image as measured by the Body-Cathexis Scale was supported.

CHAPTER 5

SUMMARY OF THE STUDY

This chapter includes a review of the study of the relationship between the independence level of paraplegics and their perceived body image. Conclusions have been drawn from the findings and the implications of these findings for nursing practice, nursing education, and nursing research. The chapter concludes with possible recommendations for further study into this topic.

Summary

This study was of a descriptive correlational design investigating the relationship between the independence level of paraplegics and their perceived body image. Literature relating to broad concepts of body image, the alterations of body image in paraplegia, and the role of independence in the rehabilitation of paraplegics was reviewed. Clinical research linking body image and independence in paraplegics was not identified after a literature search.

The sample for this study was selected using the convenience sampling method. There were 12 paraplegic

men selected from a 79-bed rehabilitation center in a large metropolitan area. Prior to data collection, permission to conduct the study was obtained from the Human Research Review Committee, the hospital administration, the physicians, and each individual subject. An opportunity to ask questions was given each subject before deciding whether to participate or not to participate in the study. Informed consent was obtained from each subject.

To measure the level of independence in paraplegics, a staff nurse completed an ADL Rating Scale on each subject. The scores could range from 0 (fully independent) to 264 (fully dependent). Each subject was awarded a numerical score for independence level. All of the subjects completed the self-administered Body-Cathexis Scale in order to measure their body image. The scores could range from 46 (least satisfied with body) to 230 (more satisfied with body). Each subject was awarded a numerical score for body image. The ADL scores and the body-cathexis scores were then compared to determine if any relationship existed between the two variables.

The research hypothesis for the study was that the higher the independence level of male paraplegics as measured by the ADL Rating Scale, the more positive their

body image as measured by the Body-Cathexis Scale. The performance of the Spearman rho showed a moderate (-.653) negative correlation between the ADL scores and the B-C scores at a significant alpha level of .05 ($p = .021$). Thus, the research hypothesis was supported, and a correlation does exist between the independence level and body image in male paraplegics.

Discussions of Findings

Based on the findings of the study, the following discussion is offered:

Test of the Hypothesis

Since the ADL scores and the B-C scores for the male subjects were found to have a significant negative correlation at the .05 alpha level, the reader may be led to assume that the independence levels are related to the body image. The level of the Spearman rho ($r_s = -.653$) is a moderate correlation and has a moderate (42.6%) predictive value. Using the equation, $BCS = 186.538 + (-.1697 \times ADL \text{ score})$, one can explain 42.6% of the variation in the dependent variable, body image score. The variables, age and time since injury, added very little to the predictive ability of the ADL variable.

No cause-effect type conclusions based on this finding can be made.

The researcher's hypothesis that the higher the independence level of the male paraplegics as measured by the ADL Rating Scale, the more positive their body image as measured by the Body-Cathexis Scale was partially supported. The analysis of the data showed that as the ADL scores decreased, the B-C scores increased. It is possible that either the independence level effects the body image and just as possible that the body image effects the level of independence, or that both variables are related to some third variable, such as race, religion, socioeconomic status, pre-injury body image, or lack of privacy during testing.

Body Image

The majority (53.3%) of the subjects rated themselves as being most satisfied with their body, and the other 41.7% were moderately satisfied with their body. None of the subjects rated themselves as being least satisfied with their body.

A possible explanation for the males scoring high on the B-C Scale is that the males place emphasis on achievement and intellectual abilities rather than

physical appearance. Research studies by Fisher (1964) provided evidence that man's role and status are defined in terms of his achievement rather than in terms of body attributes. If the males value intellect more than physical abilities, then being a paraplegic with physical disabilities would not greatly affect their body image.

Independence

The majority (58.3%) of the subjects were in the most independent category, with 16.7% in the moderately independent class, and 25% in the least independent class. The researcher suspects that the difference in independence may be related to the time since injury. The longer the paraplegic has been injured, the more rehabilitation the patient has had which should make the patient more independent.

Since 50% of the subjects were injured 6 months or less, and 33.3% were injured greater than 4 years, the researcher was concerned about this effect upon the variables, independence and body image. A correlation was computed between B-C scores and time since injury. The results of the Spearman rho was $r_s = -.099$, with $p > .05$. The variable, time since injury, had little affect upon the relationship between independence level and body image.

Conclusions and Implications

No firm conclusions can be made due to the small sample size of 12 subjects. Other limitations, such as age, ethnic background, use of one geographic area, type of trauma, economic status, and time since injury, add to the inappropriateness of making conclusions. The findings apply only to the study sample. A larger sample size would support the generalization of these findings to the paraplegic population.

The findings and conclusions of this study have implications for nursing practice, nursing education, and nursing research. With 12,000 new cases of spinal cord injury annually, nurses in various types of health care facilities may encounter these patients at various levels of care.

An important aspect of providing care to spinal injured persons is understanding that body image alterations do occur. Physical assessment of the patient's independence level and psychological assessment of body image will provide a more complete data base for the spinal cord injured patient. Nursing interventions can then be planned to assist the patient in gaining more independence, and in reintegrating the body image. Nurses may be aware that as self care activities increase,

the spinal cord injured patient is reintegrating the body image to adjust to the disability. The two tools, ADL Rating Scale and the Body-Cathexis Scale, could be utilized by nurses in practice to measure independence and body image at various stages of the rehabilitation process. This data could be helpful in evaluating specific nursing interventions, such as teaching programs and goal setting.

The implications for nursing education include teaching students the concept, developmental aspects, and factors affecting body image. Students need to understand that spinal cord injuries cause body image alterations, and nurses must plan interventions to assist the patient in reintegrating the body image. They also need to be aware of the relationship between independence and body image in paraplegics. The curriculum should include the role of the nurse in the rehabilitation of the spinal cord injured patients, the assessment of independence and of body image, and the interventions aimed at increasing independence and body image.

The implications for nursing research are that nurses can continue to examine the relationship between independence and body image in spinal cord injured patients. Studies measuring independence and body image

at several times during the rehabilitation process could add to the knowledge base relating these variables. This study was a beginning step in the needed research to be done concerning body image and independence in paraplegics.

Recommendations

The following recommendations are offered as possible studies related to the findings of this study:

1. Replication of this study using larger samples and randomization of selection.

2. Replication of this study after adjusting the tools making them more specific for paraplegics.

3. Replication of this study using quadriplegics instead of paraplegics for the subjects.

4. Comparison between the Body-Cathexis Scale and the Draw-A-Person test in measuring body image.

5. Additional studies to validate the Activities of Daily Living Rating Scale in measuring independence.

6. Comparison of body image scores in spinal cord injured patients before and after a planned educational program.

7. Comparison between body image and independence level at discharge from the rehabilitation center and at one year after discharge.

8. It is recommended that further research be done which would provide better controls for age, time since injury, socioeconomic class, researcher bias, and privacy.

APPENDIX A

TEXAS WOMAN'S UNIVERSITY

Human Research Committee

Name of Investigator: Bernadette Palmer Center: DallasAddress: 7537 Brentcove Circle Date: 11/16/79Dallas, Texas 75214

Dear Ms. Palmer:

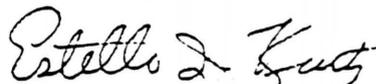
Your study entitled Independence Level of Paralegic
Men and Perceived Body Image

has been reviewed by a committee of the Human Research Review Committee and it appears to meet our requirements in regard to protection of the individual's rights.

Please be reminded that both the University and the Department of Health, Education and Welfare regulations require that written consents must be obtained from all human subjects in your studies. These forms must be kept on file by you.

Furthermore, should your project change, another review by the Committee is required, according to DHEW regulations.

Sincerely,

Chairman, Human Research
Review Committeeat Dallas.

APPENDIX B

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE The Institute for Rehabilitation and Research

GRANTS TO Bernadette Palmer
a student enrolled in a program of nursing leading to a
Master's Degree at Texas Woman's University, the privilege
of its facilities in order to study the following problem.

The relationship between independence level of paraplegic
men and their perceived body image.

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the final report.
2. The names of consultative or administrative personnel in the agency (may) (may not) be identified in the final report.
3. The agency (wants) (does not want) a conference with the student when the report is completed.
4. The agency is (willing) (unwilling) to allow the completed report to be circulated through interlibrary loan.
5. Other A copy of the completed thesis
will be a welcomed addition to our
library.

Date: 2/20/80

M. Fisher
Signature of Agency Personnel

Bernadette Palmer RN
Signature of Student

Boh C. Thurman - Ph.D. Ed.D
Signature of Faculty Advisor

*Fill out & sign three copies to be distributed as follows:
Original - Student; First copy - Agency; Second copy - TWU
College of Nursing.

APPENDIX C

Oral Presentation to Subjects

My name is Bernadette Palmer. I am a graduate nursing student at Texas Woman's University. I am conducting a research study involving paraplegic men. I am interested in finding out whether your independence level will affect how you feel about your body. Through this study I hope to provide nurses with information that will assist them in planning and providing more comprehensive nursing care to paraplegics.

As a participant in this study, you will be asked to complete a 2 1/2 page form about your feelings concerning your body parts and their functions. This will take approximately 15 minutes. A nurse on this unit will complete a form describing your ability to complete certain daily activities.

This study has no physical risks involved. I will seek to eliminate any psychological risks, such as feelings of anxiety, by being available to you to discuss your feelings. Any social risks, such as public embarrassment or improper release of data, will be avoided by the use of code numbers instead of your name, by keeping your consent forms separated from your questionnaire forms, and by reporting the conclusions as group data instead of individual scores. Your nursing care

will not be affected in any way because of your participation of nonparticipation in the study.

Your participation in this study would greatly be appreciated and will assist nurses in better understanding their patients who have spinal cord injuries. If you are interested in being a participant in this study, please read and sign the following consent form. Do you have any questions regarding this study?

APPENDIX D

Consent Form

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSINGConsent to Act as a Subject for Research and Investigation:

The following information is to be read to or read by the subject. One copy of this form, signed and witnessed, must be given to each subject. A second copy must be retained by the investigator for filing with the Chairman of the Human Subjects Review Committee. A third copy may be made for the investigator's files.

1. I hereby authorize Bernadette Palmer to perform the following investigation:

Registered nurses on this unit will complete a form describing my level of independence in performing daily activities. I will complete a 2-page questionnaire concerning my feelings about my body and its functions.

2. The investigation listed in Paragraph 1 has been explained to me by Bernadette Palmer.
3. (a) I understand that the investigation described in Paragraph 1 involves the following possible risks or discomforts:

There are no physical risks involved. Psychological risks, such as feelings of anxiety or inferiority will be lessened through the availability of professional assistance, if needed. Social risks, such as public embarrassment or improper release of data will be avoided by the use of code numbers instead of your name, by keeping consent form separated from questionnaire form, and by reporting conclusions as group data instead of individual scores. Your nursing care will not be affected in any way because of your participation or nonparticipation in the study.

-
-
- (b) I understand that the investigation described in Paragraph 1 has the following potential benefits to myself and/or others.

The conclusions of this study will help nurses to understand the feelings of paraplegics about their body, and thereby, assist nurses in planning more appropriate types of care to accelerate the rehabilitation process.

- (c) I understand that no medical service or compensation is provided to subjects by the university as a result of injury from participation in research.
4. An offer to answer all of my questions regarding the study has been made. If alternative procedures are more advantageous to me, they have been explained. I understand that I may terminate my participation in the study at any time.

Subject's Signature

Date

APPENDIX E

ACTIVITIES OF DAILY LIVING RATING SCALE

Instructions: Items are scored on a 0 to 4 scale, ranging from independence "0" to dependence "4". Scores from 0 to 1 indicate that no human assistance is needed; the patient can perform the activity alone. Scores from 2 to 4 indicate that some other person must be present when the task is being done.

- 0--Independent: with or without reliance upon a mechanical device. Near normal speed and efficiency.
- 1--Difficult, but still Independent: with or without mechanical aid, but slow, inefficient or limited in tolerance.
- 2--Supervision: task can be performed, but has to be told, watched, or instructed. Another person must be there during task performance.
- 3--Physical Help: patient can perform part of the task, but must be helped in some major way. This usually involves physical assistance.
- 4--Dependent: patient needs complete assistance and is unable to perform any part of task alone.

Rate each item of every activity according to your current knowledge of the patient's level of activity:

Early Morning Activities

I. Transfer from bed

1) Roll to side-----	0	1	2	3	4
2) Feet from covers over edge---	0	1	2	3	4
3) Come to sitting at edge-----	0	1	2	3	4
4) Maintain sitting balance-----	0	1	2	3	4
5) Prepare for transfer-----	0	1	2	3	4
6) Transfer -----	0	1	2	3	4

II. Grooming

1) Wash hands and face -----	0	1	2	3	4
2) Sponge bathe-----	0	1	2	3	4
3) Brush teeth or dentures-----	0	1	2	3	4

4) Comb or brush hair-----	0	1	2	3	4
5) Shave-----	0	1	2	3	4
6) Gather and return equipment--	0	1	2	3	4

III. Dressing (including fasteners)

1) Sleepwear off-----	0	1	2	3	4
2) Shirt on -----	0	1	2	3	4
3) Trousers on -----	0	1	2	3	4
4) Socks on -----	0	1	2	3	4
5) Slippers on -----	0	1	2	3	4
6) Shoes on -----	0	1	2	3	4

Throughout the Day Activities

IV. Wheelchair

1) Lock brakes -----	0	1	2	3	4
2) Unlock brakes -----	0	1	2	3	4
3) Raise footrests -----	0	1	2	3	4
4) Lower footrests -----	0	1	2	3	4
5) Propel forward -----	0	1	2	3	4
6) Propel in congested area-----	0	1	2	3	4

V. Ambulation

1) Rise to standing -----	0	1	2	3	4
2) Balance in standing position-	0	1	2	3	4
3) Walk within cubicle-----	0	1	2	3	4
4) Walk forward (20 feet)-----	0	1	2	3	4
5) Turn 180 degrees-----	0	1	2	3	4
6) Sit from standing -----	0	1	2	3	4

VI. Bathroom Activities

1) Enter and approach -----	0	1	2	3	4
2) Transfer onto toilet-----	0	1	2	3	4
3) Manage clothing (before)-----	0	1	2	3	4
4) Use toilet paper-----	0	1	2	3	4
5) Manage clothing (after)-----	0	1	2	3	4
6) Transfer off toilet -----	0	1	2	3	4

VII. Feeding

1) Cold or hot drinks-----	0	1	2	3	4
2) Soup or cereals -----	0	1	2	3	4
3) Finger foods -----	0	1	2	3	4
4) Solid foods -----	0	1	2	3	4
5) Hard to manage foods -----	0	1	2	3	4
6) Cut meat -----	0	1	2	3	4

VIII. Care of Possessions

1) Manage drawer-----	0	1	2	3	4
2) Manage cabinet-----	0	1	2	3	4
3) Manage curtain for privacy---	0	1	2	3	4
4) Manage use of safety pin-----	0	1	2	3	4
5) Put garment on hanger-----	0	1	2	3	4
6) Pick up object from floor----	0	1	2	3	4

IX. Interpersonal Relations

1) Count change -----	0	1	2	3	4
2) Use a dial phone-----	0	1	2	3	4
3) Understand signs-----	0	1	2	3	4
4) Pick up pencil and write name -----	0	1	2	3	4
5) Interest in personal appearance-----	0	1	2	3	4
6) Participation in social activity -----	0	1	2	3	4

End of Day Activities

X. Undressing

1) Shoes off -----	0	1	2	3	4
2) Slippers off -----	0	1	2	3	4
3) Socks off -----	0	1	2	3	4
4) Trousers off -----	0	1	2	3	4
5) Shirt off -----	0	1	2	3	4
6) Sleepwear on -----	0	1	2	3	4

XI. Transfer to Bed

1) Prepare for transfer -----	0	1	2	3	4
2) Transfer to edge of bed-----	0	1	2	3	4
3) Position self-----	0	1	2	3	4
4) Place feet under covers-----	0	1	2	3	4
5) Lie down -----	0	1	2	3	4
6) Adjust position for comfort-----	0	1	2	3	4

Dinnerstein, A. J., Lowenthal, M., & Dexter, M. Evaluation of a rating scale of ability in activities of daily living. Archives of Physical Medicine and Rehabilitation, 1965, 46, 583-584.

APPENDIX F

Information Sheet

1. Age _____
2. Level of Injury _____
3. Type of trauma (circle one)
 auto accident industrial accident
 gunshot wound diving accident
 athletic injury other _____
4. Date of injury _____
5. Marital Status (circle one)
 single married divorced widowed
6. Occupation _____
7. Pre-injury hobbies or special interests

BODY-CATHEXIS SCALE

On the following pages are listed a number of things characteristic of yourself or related to you. You are asked to indicate which things you are satisfied with exactly as they are, which things you worry about and would like to change if it were possible, and which things you have no feelings about one way or the other.

Consider each item listed below and encircle the number which best represents your feelings according to the following scale:

- 1-- Have strong feelings and wish change could somehow be made.
- 2-- Do not like, but can put up with.
- 3-- Have no particular feelings one way or the other.
- 4-- Am satisfied.
- 5-- Consider myself fortunate.

Hair	1	2	3	4	5
Facial complexion	1	2	3	4	5
Appetite	1	2	3	4	5
Hands	1	2	3	4	5
Distribution of hair over body	1	2	3	4	5
Nose	1	2	3	4	5
Fingers	1	2	3	4	5
Elimination	1	2	3	4	5
Wrists	1	2	3	4	5
Breathing	1	2	3	4	5

Waist	1	2	3	4	5
Energy level	1	2	3	4	5
Back	1	2	3	4	5
Ears	1	2	3	4	5
Chin	1	2	3	4	5
Exercise	1	2	3	4	5
Ankles	1	2	3	4	5
Neck	1	2	3	4	5
Shape of head	1	2	3	4	5
Body build	1	2	3	4	5
Profile	1	2	3	4	5
Height	1	2	3	4	5
Age	1	2	3	4	5
Width of shoulders	1	2	3	4	5
Arms	1	2	3	4	5
Chest	1	2	3	4	5
Eyes	1	2	3	4	5
Digestion	1	2	3	4	5
Hips	1	2	3	4	5
Skin texture	1	2	3	4	5
Lips	1	2	3	4	5
Legs	1	2	3	4	5
Teeth	1	2	3	4	5

Forehead	1	2	3	4	5
Feet	1	2	3	4	5
Sleep	1	2	3	4	5
Voice	1	2	3	4	5
Health	1	2	3	4	5
Sex activities	1	2	3	4	5
Knees	1	2	3	4	5
Posture	1	2	3	4	5
Face	1	2	3	4	5
Weight	1	2	3	4	5
Sex (male or female)	1	2	3	4	5
Back view of head	1	2	3	4	5
Trunk	1	2	3	4	5

Secord, P. F., & Jourard, S. M. The appraisal of body-cathexis: body-cathexis and the self. Journal of Consulting Psychology, 1953, 17, 343-344.

APPENDIX G

Subjects' Paired Scores

<u>Subject</u>	<u>ADL Score</u>	<u>B-C Score</u>
1	115	167
2	193	148
3	43	170
4	74	172
5	191	160
6	24	223
7	116	172
8	30	165
9	9	176
10	27	184
11	30	172
12	205	152

n = 12

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