COPING WITH DISABILITY INVENTORY - A STUDY OF THE RELIABILITY AND VALIDITY OF AN INSTRUMENT DESIGNED TO MEASURE COPING BEHAVIOR OF PHYSICALLY DISABLED PERSONS IN THE UNITED STATES AND INDIA

By

Madhav R. Kulkarni

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ABSTRACT

COPING WITH DISABILITY INVENTORY - A STUDY OF THE RELIABILITY AND VALIDITY OF AN INSTRUMENT DESIGNED TO MEASURE COPING BEHAVIOR OF PHYSICALLY DISABLED PERSONS IN THE UNITED STATES AND INDIA

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This study was undertaken to establish the reliability and validity of an instrument that would measure coping behavior in physically disabled persons and the research the relationship between the low and high coping behavior of disabled persons and certain demographic variables, such as sex, education, income, productivity, and health status. The study was conducted on the samples obtained from the mid-Michigan region of the United States and Ahmedabad City in India.

The instrument developed to measure coping behavior of physically disabled persons was titled the Coping with Disability Inventory (CDI) and was patterned after a coping model based on three psychosocial concepts - coping, competence, and quality of life. The CDI had two subscales - the outcome subscale and the process subscale.

The Coping with Disability Inventory Schedule and a measure of psychosocial aspects of personality, the California Psychological Inventory (CPI) were administered to 46 self-volunteering, adult, physically disabled American subjects. The CPI was scored according to

Haan's method to obtain the coping scores. For the Ahmedabad (India) part of the study, only the Coping with Disability schedule was administered to 33 self-volunteering, adult, physically disabled persons.

For the American sample, the reliability of the total scale and the two subscales of the instrument, as measured by Cronbach's alpha, was .883 for the total scale, .825 for the outcome subscale, and .779 for the process subscale. For the Indian sample, the Cronbach's alpha was .750 for the total scale, .714 for the outcome scale, and .406 for the process subscale.

The concurrent validity of the CDI was established only for the American sample. A Pearson correlation of $r = .531$ ($p \leqslant .001$) was obtained between the CDI total scores and Haan's CPI-based total coping scores. The multiple R was .646 (significant at the .001 level).

Ten hypotheses were developed and tested to research the relationships between the coping construct and the demographic and independent variables.

Initial reliability and validity studies of the CDI indicate sufficient psychometric properties to recommend its continued development and utilization as a clinical assessment tool in the United States. Although the CDI has demonstrated an acceptable level of overall relaibility on the Indian sample, a revision of the CDI is indicated because of the low reliability of the process subscale.

Dedicated to my late father
Professor Ramarao Anantrao Kulkarni, M.A., M.Ed. (Leeds)

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Lansing, Michigan. In Ahmedabad, India: (1) Andhajana Kalyan Kendra Ahmedabad; (2) The Society for Physically Handicapped, Ahmedabad; (3) Apanga Manav Mandal, Ahmedabad; (4) Physio-Occupational Therapy Center, Ahmedabad; and (5) Apanga Manava Seva Sangh, Ahmedabad. My grateful thanks to the subjects, who graciously consented to participate in the study and, with unusual interest, underwent 2-3 hours of test administration.

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CHAPTER I

THE PROBLEM

Introduction

It is well recognized by those working for the rehabilitation of disabled persons that the disabled individual is the central figure in this process. Any effort to rehabilitate the disabled person will succeed only to the extent that he or she is successful in coping with the disability. In the words of Jaques (1970), "in the end, the most we can do is to assist clients to mobilize their own resources, decide what they wish and are able to be, and achieve goals through their own efforts and their own ways". However, rehabilitation service providers have tended to exclusively focus their efforts on the physical, social, economic, and psychopathological aspects of disability, and to neglect the psychological well-being of the person. The disabled person's ability to cope with his or her disability was often left to chance rather than being supported by a system that attempts to generate coping behaviors. Of late, however, more concern has been shown toward understanding the psychosocial impact of disability on an individual. Increasingly more studies explore the interactional effect between disability and the personality of the affected individual.

A review of the rehabilitation literature, unfortunately, depicts the disabled person as dejected, depressed, and overcome by the disability rather than portraying his or her attempts for dealing with disablement. Physical disability is invariably viewed as imposing, negative, and resulting in disruptive psychological consequences. Studies on the effect of disability on personality usually focus on loss of body intactness, maladjustment, denial, depression, and succumbing. These studies generally reflect the assumption that the presence of disability inevitably interferes with personality development and functioning and leads to psychological maladjustment (Buck and Hohmann, 1981; Kammerer, 1940; Shontz, 1970). There have been attempts to link specific forms of somatic disorders with specific types of personality.

Shontz (1970), after an extensive survey of the relevant literature, concluded that specific types of disabilities are not associated with specific personality characteristics, that different types of disabilities do not cause specific maladjustments, and that there is no predictable connection between severity of disability and psychological adaptation. The basic personality structure appears to be remarkably stable even in the face of serious physical disability. On the other hand, physical disability can and does produce impact on individual psychological adjustment. It may sometimes produce severe behavioral problems, but these are often transient in nature. Unfortunately, direct service providers have neglected to recognize this transient nature of severe psychological problems. Instead, such problems are often interpreted as an aspect of individual personality.

The reality that many disabled persons lead highly active and successful lives while coping well with their disability has been generally ignored. Wright (1960), however, indicated that the disability often provides opportunity for success and gratification as well as frustration and grievances.

Several authorities in the field have advanced different theories to explain the basis of an individual's reaction to physical disability. Barker, Wright, and their colleagues (Barker & Wright, 1953; Dembo, Levitan & Wright, 1953; Meyerson, 1955; Wright, 1960), expanding on Kurt Lewins field theory, have constructed the somato-psychological approach to disability based on concepts such as spread, value loss, dual identification, containment of disability, idolization of normal standards, and comparative and asset values (Shontz, 1977). Wright (1975) has emphasized asset values (based on the insider perspective) and comparative values (based on the outsider perspective) as being of primary importance in adjustment to physical disability.

Several authors, describe adjustment to disability as a developmental process with four or five stages. Fink (1967) views disability as a crisis experience with four stages i.e, shock, defensive retreat, acknowledgement, and adaptation. Kerr (1961) divides the adjustment process into five phases including: shock, expectancy of recovery, mourning, defense (A. healthy; B. neurotic), and adjustment. Shontz (1965) analyzes this process as a succession of approach-avoidance cycles.

A major recent approach has viewed the adjustment reaction to disability as arising from attitudes of society towards disabled persons. This approach states that disabled persons are forced into an 'inferior' social position because of their being perceived as 'different' or 'deviant' by nondisabled persons (Gellman, 1974; Siller, 1976). Such perceptions produce rejection of intimacy, interactional strain, generalized rejection, and imputed functional limitations. Shontz (1970) points out that while the study of devaluating attitudes towards disability is important in its own right, it does not tell the whole story of disability and personality.

Wright (1960) viewed adjustment to disability either as succumbing or coping behavior. According to her, use of 'as if' behavior, idolization of normality, and focus on deficit behavior are all indicative of succumbing to disability. "The succumbing frame work highlights the negative impact of disablement giving scant attention to the challenge for change and meaningful adaptation. Prevention and cure are seen as the only valid answers. Satisfaction and assets are minimized or ignored. The emphasis is on the heartache, the loss, on what the person cannot do. Such a state is viewed as pitiful and tragic...." (Wright, 1983). A person would be considered as coping if he or she has other than disability-related values, places less importance on physical appearance and physical ability, contains the impact of disability to the original impairment, and emphasizes intrinsic qualities rather than general norms or values of others. "The Coping framework is oriented toward seeking solutions and discovering satisfactions in living" (Wright, 1983). It recognizes the disability as only one aspect of a multifaceted life that includes gratifications as well as grievances, abilities as well as disabilities. Along the same line, Vash (1981) referred to the reactive process within an individual who transcends his or her disability and is no longer conscious of physical disability or limitations.

In addition to the above approaches, there have been many attempts to explain the process of adjustment to disablement in terms of various personality theories. Body-image theory (disruption of body image due to chronic illness or disability) is based on application of psychoanalytical principles to physical disabilities (Fisher & Cleveland 1968; Menninger, 1953; Murphy, 1957). McDaniel (1969) has explained the reaction to disability in terms of Adler's 'individual psychology,' using the construct of 'inferiority.' Gordon (1966) has attempted to explain the reaction to disability in terms of the 'sick role,' basing his propositions on the concepts of Talcott Parsons and 'role theory'. Similarly, there have been attempts to apply Rogers 'self concept' approach to studying the adjustment process in the disabled (Roessler and Bolton 1978).

The above review indicates that there have been a variety of approaches in studying the psychological aspects of disability where the concepts of pathology, illness, and deficits have dominated those of adjustment and adaptation. As Blom et al., (1982) pointed out, there has been insufficient attention to the study of disabled persons who cope and display competence and life satisfactions. These persons are often dismissed as the few exceptions rather than representing large numbers. In a pathology orientation, disabled people who lead maladaptive and unsatisfying lives are thought to be representing the entire group. What is overlooked is the probability that the majority of persons with disability are able to adapt positively and lead satisfying lives. Even under the adverse condition of disability, there are some who do extremely well.

In view of the above, it is essential to study the coping process in disabled persons so that one can understand: 1) how a disabled person copes with his/her disability, and 2) what factors promote successful coping or, conversely lead to maladaptation. Understanding the coping process would be highly beneficial to rehabilitation workers, psychologists, social workers, occupational therapists, physical therapists, and the many other professionals who work with disabled persons in varying rehabilitation phases. The disabled person also can be helped to understand his or her psychological reactions, learn, and be taught the methods of successful coping in order eventually to achieve a better quality of life.

The Need and Purpose for the Study

The author was directly involved in a study of the coping process of nine physically disabled individuals who were described by their peers as successful copers. This pilot study was conducted under the auspices of the University Center for International Rehabilitation (UCIR) under the leadership of Dr. Gaston E. Blom (Blom et al., 1982). The study identified successful and unsuccessful coping behaviors and led to the development of a coping inventory for physically disabled persons. The inventory focused on significant coping processes and behavioral outcomes identified as important by disabled persons and by a review of the professional literature.

Since the inventory yielded important information, the need for validating the inventory on a larger sample of disabled persons was identified as the next step. It was felt that the inventory could be tested on a representative sample of such persons in the United States. In addition, in view of the interest of UCIR in promoting international cooperation in the rehabilitation field, the group decided to explore the possibilities of extending the study of coping with disability to different national cultures.

Thus this doctoral research contributed to validating the above coping inventory on a larger sample of disabled persons in the United States. The sample was be obtained from Lansing and other locations in central Michigan. Concurrently, an attempt was made to standardize the coping inventory (establish standard procedures for administering the inventory and interpreting the scores) on a representative sample of disabled persons in India, particularly from the city of Ahmedabad in the Gujarat State of India.

The rationale for standardizing the coping inventory on an Indian sample of disabled persons is as follows. India is a large and densely populated country. Though a poor country by the economic standards of industrialized nations it is rich in its cultural heritage and influence. The people of India are deeply religious, steeped in tradition and folklore, and have a philosophical outlook. Attitudes towards disabled persons are strongly influenced by religious beliefs, cultural norms, and traditions. Before India gained independence, the general approach toward disabled persons was based on charity, philanthropy, and benevolence. Denied opportunity for treatment, education, and rehabilitation, a disabled individual eeked out a life of bare subsistance and suffered deprivation in his or her social life.

With the dawn of independence in 1947, the modernization process engulfed the country and the outlook toward disabled persons underwent a remarkable change. Under the influence of western culture and modern ideas, rehabilitation and social welfare services were and still are being developed for disabled persons on a scale that was previously unimaginable. The government and the society at large have started working toward providing better opportunities for disabled persons and improving the quality of their lives. Disabled individuals now have government scholarships for their education, specialized programs for their training and rehabilitation, and special provisions for their employment. Rehabilitation centers and special schools are being opened in large numbers and attempts are being made to extend rehabilitation services into rural areas.

While this surge in promoting the welfare of disabled persons is welcome and heartening, one is struck by the inadequacy of research efforts pertaining to the area of disability. Of late, there have been attempts to evaluate the efficacy of the service programs and to develop a research orientation in the general area of rehabilitation. It is, of course, not surprising to note that there are hardly any studies done on the psychological impact of physical disability, let alone the study of the coping proces in disabled persons.

In view of the paucity of studies in India pertaining to the psychological aspect of physical disability, the present author proposed to undertake a study to understand how a physically disabled person copes with his or her disability in the context of the Indian setting. Such a study would also endeavour to find out how well and why the disabled person copes or does not cope with his or her particular circumstances and what can be done to improve and sustain the coping process. In order to conduct such a study, it is essential to have an instrument for measuring the coping process in a physically disabled person within the Indian context.

The goal of the present study was to develop a coping inventory suitable for disabled persons in India by standardizing it on an adequate sample of subjects. Validation of the study could not be considered, because there was no suitably standardized psychological inventory in India with which the data obtained on the Indian sample could be compared. However, efforts were made for a validational check on the Indian sample. Under the circumstances, this attempt at standardization of the coping inventory for India was a first step towards validation at a later time.

Along with the validation of the measuring instrument on the American sample and the standardization on the Indian sample, the study yielded, in a limited way, data pertaining to coping processes in physically disabled persons. This limited data was used to clarify the factors that influence the process of coping with disability within the context of the cultures of the United States and India and to formulate recommendations for further study. In addition, the data collected was utilized to make some comparisons and contrasts of the coping process within the two different national cultures of the United States and India.

Theoretical Background

For the purpose of this study, **coping** is viewed as an **adaptational** process or a challenge to environmental and individual life events. It can be distinguished from **defending**, which is a response process to threat and anxiety. Not only are the central issues of challenge and anxiety different but also the specific adaptational responses of coping and defending can be distinguished from each other. **Fragmentation** is an even less adaptive response to experienced danger and represents a failure to overcome or protect the person from feelings, conflicts, and life situations. While clear distinctions can be made among coping, defending, and fragmenting, mixtures of these processes occur as a function of time, disablement, and the nature of inner and outer life events.

The above coping framework was developed by the Coping Study Group of UCIR at Michigan State University. In 1980, UCIR initiated a pilot project to study the coping process in adult disabled persons. Interested faculty, staff, and graduate students came together to work on this project under the leadership of Dr. Gaston Blom. The author was one of these participants. This group developed a theoretical model of the process of coping in adult disabled persons and decided to test this model through a study of nine persons with physical disabilities. The persons studied were identified by disabled peers as adapting well to their disability. They had a range of physical impairments including spina bifida, spinal cord injury, dwarfism, disfigurement from burns, blindness, and musculoskeletal disorders.

The study confirmed the usefulness of the theoretical model that was developed. The present study is an extension of this pilot study.

The coping model formulated by the UCIR study group attempted to explain adult disabled persons who adapt well. The coping model drew from White's concepts of adaptation, mastery, and competence (1960, 1963, 1974, and 1979). The distinction that Haan (1977) made between coping and defending processes further clarified the coping concept. The writings of Kerr (1977), Wright (1960), and Vash (1981) contributed significantly in formulating the coping model. Review of the literature on the process of psychosocial adjustment in physically disabled persons contributed further in building the model.

A Theory of Coping

In accordance with the concepts of White (1974), the UCIR model viewed coping as one of the adaptational strategies used by human beings. In interacting with their environment, human beings continuually resort to adaptational strategies. The human adaptational process not only helps maintain psychological homeostatic balance but also fosters growth and change. Coping, defense, and fragmentation are all strategies of adaptation (Blom et al., 1982).

Like Haan (1977), the UCIR coping model made a clear distinction between coping, defending, and fragmenting. This model viewed coping, defending, and fragmenting on a dynamic continuum with coping representing a higher or superior level of adaptation, defending representing a somewhat inferior or immature level of adaptation, and fragmenting representing maladaptation.

Fragmentation implies a failure to actively deal with or to protect against life situations, feelings, and conflicts (Haan, 1977). It is characterized by being overcome with feelings, perceptual distortions, autistic based thinking, and behavioral disorganization.

Defense is the response process to threat where anxiety is central; defensive mechanisms are adaptive devices that have gone wrong (White, 1979). In the shortrun, defensive mechanisms may be adaptive but can cause difficulties in the long run. Defending involves protection against feeling and knowing; psychological equilibrium is maintained but efforts are restricted (Haan, 1977). Defending has characteristics such as information reduction, cognitive constriction, behavioral rigidity, limited choice, irrationality, emotional intolerance, intrapersonal concerns, and low self-confidence (Haan, 1977; White, 1974).

Coping involves new behavior when a given problem defies a familiar behavioral response; coping is stimulated by meeting difficult and unfamiliar adaptive conditions (White, 1974). Coping consists of an active psychological effort to overcome, master, and solve internal and external problems and dilemmas (Haan, 1977); it has characteristics such as contending, striving, persisting, resisting, opposing, flexibility, good perceptions, emotional tolerance, information seeking, interpersonal involvement, confidence, and courage (Haan, 1977; White, 1974 and 1979).

The coping model viewed coping as an ongoing evolving process that never ends (Haan, 1977). Human beings are seen as growing, changing, and learning and in continuous interaction with their environment.

People are seen as setting goals, identifying needs, and developing skills that allow them to cope more effectively with their environment, interact more effectively with others, and lead fuller more productive lives (Wine and Smye, 1981). A coping person translates psychological insights into new behaviors. A person, however, will not always cope with the same or different life situation(s) at a given time. There may be times and situations when defending and fragmenting will exist. Adaptive processes are influenced by the strength and presence of internal and external factors that impede or facilitate adapting (Blom, et al., 1982).

Coping is a reaction to everyday encounters with the environment. A person may psychologically preceive these encounters as a challenge, a threat, or a danger. If a particular encounter is perceived as a challenge, the person will strive actively to overcome or master the situation. If a person feels threatened by the situation, he or she will feel anxious and may use defensive reactions such as denial, avoidance, and despair. Sometimes the person may perceive the situation as dangerous and may withdraw from the situation or display hostile agressive behavior. If a person is able to deal with a life situation successfully, then his or her perception of that situation is altered. A successful encounter leads to a feeling of efficacy (White, 1974). What may be viewed as formidable becomes easy to handle as a result of competency.

The feeling of 'competency' is valued, so people are pleased by proof of new abilities and feel inferior when something cannot be accomplished that was viewed as within the person's power to do.

Competence conveys an image of a strongly individualistic person creatively shaping his or her environment (Wine and Smye, 1981). The UCIR coping model held that social competence was the most important kind of competence. This view is supported by White (1974). A person who is competent is viewed as being an active problem solver, effective in interpersonal skills, active and self-regulating, self-confident, high in self-esteem and able to master the environment (Blocher, 1966; Kulkarni, 1982).

Along with coping and competence, the coping model held that quality of life and life satisfactions are important aspects of 'well being' (Blom et al., 1982). The model holds that quality of life and life satisfactions are reflected by psychosocial and economic indicators such as physical and material well-being, relations with other people, social-community-civil activities, personal development and fulfillment, leisure activities, residential environment, health, and income (Andrew and Withey, 1976; Campbell, 1976, 1977; and Flanagan; 1980, 1982).

The theoretical model of coping contended that coping is an on-going, evolving process, while competence and quality of life are achieved states (Blom et al., 1982; Haan, 1977). Coping is reflected in process behaviors, and competence and quality of life are reflected in outcome behaviors.

Taking a view of coping as developing across time, the UCIR model held that the coping process has an inherent developmental aspect (Blom, et al., (1982). This view is supported by a number of studies that report use of defending and coping strategies by children to overcome stress and adverse life situations (Anthony, 1975; Blom, 1982; Garmezy, 1981; and Rutter, 1979). White (1963) has indicated that social initiative on the part of the child helps develop the interactional process that in turn leads to social competence. Social competence will not develop if there is a failure to experience positive responses from self and others. Quality of mothering has a beneficial effect on development of coping and, in general, coping parents produce coping offspring (Haan, 1977).

A Model of Coping with Disability

The above theoretical model of coping was applied by the coping study group to formulate a model of the coping process in physically disabled persons. The UCIR model of coping with disability postulated that disability and its related social and psychological consequences act as a series of stressors that challenge adaptive responses to be learned or taught (Blom, 1982). Psychosocial reactions to disability imply normative responses from psychologically normal people to various interacting abnormal stimuli (biologic, environmental, social, and economic). These abnormal stimuli impede the adaptational process in disabled persons (Vash, 1981).

The adaptational process in disabled persons represents a dynamic continuum ranging from maladaptation to adaptation to high-level life enhancement with physical disability. A physically disabled person may respond to his or her disability by succumbing, defending, or coping (Kerr, 1977; Wright, 1960). Succumbing implies a response that is similar to fragmentation, and may be maladaptive in nature. Succumbing concentrates on what the person cannot do; disability is central and the person as an individual is submerged. The individual may be demanding, depressed, uncooperative and complaining of pain. A defensive reaction to a disability includes denial of the effects of disability, concealing, rationalizing, projecting, despair, and anxiety (Adams and Lindermann, 1974; Kerr, 1977; Wright, 1960). Coping represents a constructive view of life with a disability. Persons with disabilities are active participants in their own lives and in the life of the community rather than passive victims of fate (Wright, 1960). The need for whole body intactness is relinquished. The person considers the disability as merely one of his or her many characteristics (Kerr, 1977). Coping responses to disability include positive striving, seeking solutions, discovering satisfactions, self-understanding, reduced negative expectancies, relinquishing the need for whole body intactness, acceptance of differentness, viewing disability as a characteristic, involvement in personal and environmental change, and having a special philosophy of life (Blom, 1982; Kerr, 1977; Vash, 1981; and Wright, 1960). The above adaptational response involves many levels: the person, the handicapping world, residential environment, the family, sexuality and intimacy, education and employment, friendship, and recreation.

The coping study group developed and operationalized a definition of coping that best fits the adaptational process in disabled persons.

Coping was defined as an active psychosocial process characterized by a persistent effort to overcome, master, and solve problems, issues, and dilemmas within the person and in the outside world, connected or unconnected with the disability. This process occurs in the context of individual-environmental transactions, such as belief systems and cultural practices. Coping facilitates the development of competence and quality of life, which are behavioral outcomes, but it does not guarantee their occurence.

The above definition captures the adaptational aspects of the adjustment process in disabled persons. It also notes the impact of societal response and cultural practices on the coping process in disabled persons. Coping is viewed as a necessary process for attainment of competence and quality of life, though it is not in itself a sufficient condition. Competence and quality of life, which are outcome behaviors, are culture-bound phenomenon and may be influenced by socioeconomic factors such as education, employment, and income (Blom, et al., 1982; DeJong, 1981).

Two additional dimensions of coping need to be added: 1) an individual with a disability will not always cope, depending on the presence and strength of factors that impede or facilitate the adaptive process, and 2) coping is an adaptive developmental process.

The coping model recognized that a person with disability will not always cope; at times the individual may be defending or even fragmenting. The model does not view shortcomings of psychological behaviors associated with disability as transpositions of psychopathology. It recognizes that painful emotions, reaction to societal response, and low self esteem associated with disability are appropriate in a model of psychosocial response (Blom, 1982). Adjustment to disability involves shock, mourning the loss of ability, expectation of recovery, acceptance of disability, defense, coping, and transcendence over disability. These adaptive responses to disability may be sequential and indicative of the developmental aspect of coping. The model stresses development of human potential and quality of life and deemphasizes a pathology orientation and idolization of normality (Blom, 1982; Vash, 1981). From the standpoint of response and adaptation, rehabilitation is viewed as a life-long process of human development.

The literature does not make a distinction between congenital and acquired disability. In fact, Kerr, Wright, and Vash developed their notions on acquired disability. The coping model postulated that the coping process has an inherent developmental aspect. Taking a view of coping across time, the model posited that there is a developmental aspect to the coping process in children with congenital and acquired disabilities. This view is in part supported by Blom (1982) and Garmezy (1981) who indicated that stress-resistant children use defending and coping strategies. Taking a life-span developmental perspective, Kerr, Vash, and Wright ascribe to an intrinsic developmental component in the process of coping with acquired disability. Further, thinking along the lines of Haan's (1977) coping model, the coping study group theorized that if the parents are good copers, then their disabled children may develop to be a good coper; and that quality of mothering would significantly influence development of coping ability in a disabled child.

The model of coping described above could be diagramatically presented as shown in Figure 1.1 on page 19. As per this diagram,

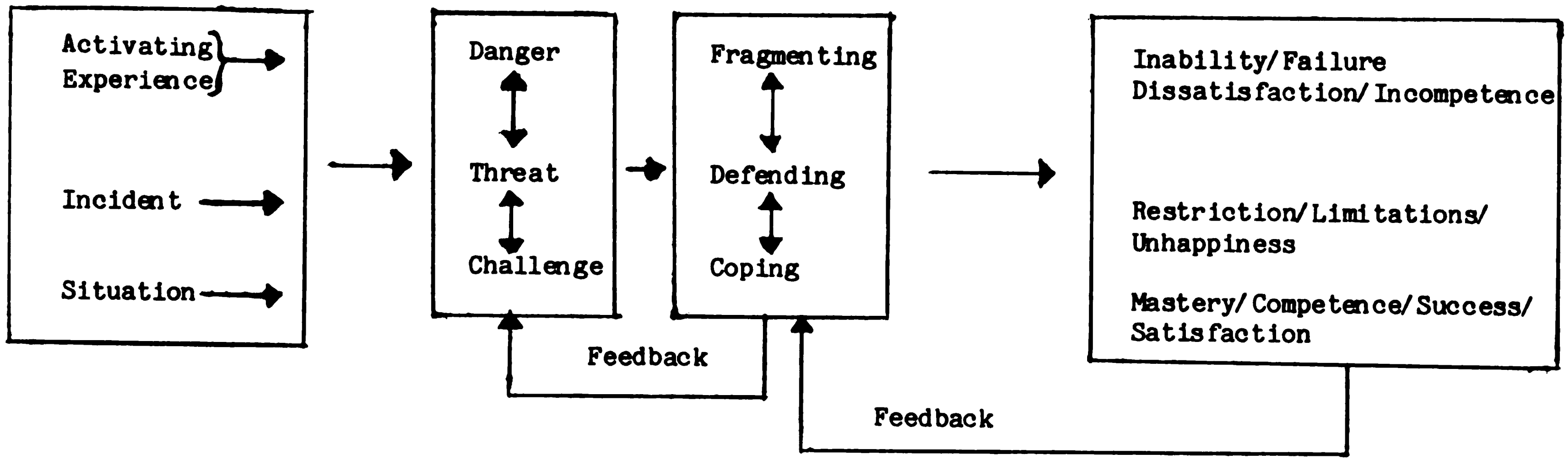

Figure 1.1 A Theoretical Model of the Process of Coping with Disability

disability serves as an activating experience for an individual by placing him or her in a variety of interactions with the environment. It indicates that a person may view the life experiences that arise as a result of his or her disability as a challenge, a threat, or as a danger to his or her existence. If these activating experiences are perceived as a challenge, then the person responds by making active efforts to overcome or master the situations that arise because of his or her disability. Such a behavioral response would lead to coping. A person threatened by disability may respond with defensive reactions, such as anxiety, denial, avoidance, and belief in external forces as determiners and controllers of life events. On the other hand, a person may react by succumbing to his or her disability, which may result in withdrawal, distorted thinking, and disorganized behaviors. Such a behavioral response would be considered fragmenting. The diagram indicates that a coping person would exhibit behaviors such as mastery, competence, success, and satisfaction in life. Defending would lead to restrictions, limitations in function, and unhappiness. Fragmenting would result in inability to function, incompetence, failure, and dissatisfaction with life. The model views coping, defending, and fragmenting as evolving processes that change from situation to situation. A person may be coping with one situation and defending in another. The boxes in the diagram indicate that at times the person's response to disability may present a mixture of all three processes. The diagram presents the coping process as a continuous chain of reactions. The perception of disability as a challenge leads to utilization of coping strategies, which leads to success in dealing with problems connected with disability. The diagram suggests that feedback from success in dealing with one's disability-related problems strengthens the person's coping process. In turn, a person who is coping is more likely to view activating life experiences as a challenge rather than as a threat. A series of successful encounters helps develop coping skills in a disabled person and ensure a better quality of life.

The Coping with Disability Inventory

The instrument that was developed to operationalize the theoretical model of coping formulated by the UCIR Coping Study group was titled The Coping with Disability Inventory-Disability Adjustment Questionnaire (see Appendix A).

As per the formulations made in the model of coping, the inventory was constructed to reflect dimensions of the coping process in physically disabled persons. The dimensions used to measure the coping process in physically disabled persons were:

1. Coping process. The aspect of coping that deals with process behaviors was included in this dimension. Process behaviors listed under this dimension included striving, problem-solving, emotional tolerance, qualified judgment, locus of control, and relationships that feelings of others into account.
2. Social competence. The aspect of coping that deals with social behaviors was included in this dimension. Behaviors listed under this dimension included information seeking,

interpersonal skills, accepting body differentness, self-esteem, and involvement in personal and environmental change.

3. Quality of life. The aspect of coping that deals with quality of life and life satisfactions was included in this dimension. Behaviors included under this dimension reflected physical and material well-being, personal development and fulfillment, leisure, and having a special philosophy of life.

The inventory has two subscales. One contained process behavior (coping) items and was denoted as the Process Subscale. The other contained social competence and quality-of-life behavior items and was denoted as the Outcome Subscale.

Assumptions

For the purpose of this study, the following assumptions were made.

(1) In the psychosocial adjustment to a physical disability, an individual experiences adaptive developmental processes whether the disability is acquired or congenital. These adaptive developmental processes will be similar regardless of the individual's cultural origins.

(2) The adaptive processes can be understood through the disabled person's descriptions of feelings and thinking and observation of action and body response behaviors. The adaptive response processes of a disabled individual can be classified as

coping, defending, or fragmenting. At any given time an individual may show all of these processes; but one of them may stand out predominantly.

(3) A person coping with disability will exhibit positive psychological processes and behavioral outcomes indicative of competence, improved quality of life, productivity, independence in living, and life satisfactions.

(4) Coping ability has a normative distribution in the general population. Therefore, coping ability will be normatively distributed in physically disabled persons as well.

Research Questions

The research questions answered by this study were as follows:

1. Is the Coping with Disability Inventory a reliable measure of the coping process in physically disabled persons?
    a. Is the total coping scale internally consistent?
    b. Are the subscales internally consistent?
    c. Do items in the scale correlate with the total coping score?
2. Is the Coping with Disability Inventory a valid measure of the coping process in physically disabled persons?
3. How does the sex of the subject influence the coping process in physically disabled persons?
4. What is the effect of congenital and acquired disability on the coping process in physically disabled persons?
5. Is the coping process in physically disabled persons affected

by the stability of their disability?

6. Are well-educated physically disabled persons better copers with their disabiling condition when compared with physically disabled persons with a low level of education?
7. How do mainstreamed education and segregated education affect the coping process in physically disabled persons?
8. What is the effect of level of personal income on the coping process in physically disabled persons?
9. Does the level of the mother's and father's education influence the coping process in physically disabled persons?
10. Do independent living outcomes affect physically disabled persons process of coping with their disability?
11. How does the productivity of a physically disabled person affect his or her process of coping with his or her disability?
12. Is the coping process in physically disabled persons affected by their disability and nondisability related health?

Definition of Terms

Various terms used in this study are operationally defined as follows:

Adaptational Process: Modifications in drives, attitudes, emotions, and behaviors to deal with biosocial changes and environmental demands.

Competence: An achieved psychological state acquired by an individual as a result of a series of successful adaptive encounters with his or her social environment. White (1963) suggested that social competence may be the most important kind of competence, thereby indicating a possible hierarchy of competencies.

Coping: An active psychosocial process characterized by a persistent effort to overcome, master, and solve problems, issues, and dilemmas within the person and in the outside world, connected or unconnected with the disability. This occurs in the context of individual environmental transactions, such as belief systems and cultural practices. Coping facilitates the development of competence and quality of life which are behavioral outcomes, but does not in itself guarantee their occurrence.

Defending: A psychosocial process involving protection against feeling and knowing. It is characterized by rigidity, limited choice, irrationality, information reduction, emotional intolerance, intrapersonal concerns, and low self-confidence.

Disability: Any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being. A physical disability may arise as a direct consequence of impairment or as a response by the individual, particularly psychologically, to physical or sensory impairment. Disability reflects objectification of an impairment and as such, it represents disturbances at the level of the person.

Fragmentation: A psychosocial process that represents a continuum with coping and defending. If coping is represented to be at higher or superior level of adaptation then defending represents somewhat inferior or immature level of adaptation, and fragmenting represents maladaptation. It is characterized by being overcome with feelings, perceptual distortions, autistic-based thinking, and behavior disorganization.

Independent living: The ability of a physically disabled person to participate actively in society and control his or her life based on the choice of acceptable options that minimize reliance on others in making decisions and in performing everyday activities. This includes managing one's own affairs, holding a job, raising a family, and participating to the fullest possible extent in the day-to-day life in the community.

Life satisfaction: A generalized perspective of life as satisfactory. It indicates satisfaction with specific life concerns such as marriage, family life, health, friendships, housework, leisure, job, living in a city or rural area, standard of living, amount of education, and savings.

Quality of life: An umbrella concept that includes a variety of positive feeling states about one's life. In describing quality of life, one can focus on conditions of life or experience of life. The conditions of life deal more with the physical aspects of living, while experience of life deals more with the psychosocial aspects of living and enjoying life. In studying the quality of life of disabled persons, our focus is on the experiences of disabled persons in day-to-day living.

Productivity: Competence in achievement, creativity, or leadership in any of the areas of life. A productive person needs analytical and reflective thinking, a future time perspective, capacity for delay of reward, capacity for sustained attention, desire for achievement, internal locus of control, and absence of anxiety.

Overview

The purpose of this study was to validate the Coping with Disabiity Inventory on a sample of physically disabled adults from the United States and, concurrently, to standardize the coping inventory on a sample of physically disabled adults from India. In Chapter I the problem to be investigated in this study was introduced, the need for the study was discussed, assumptions underlying the study were stated, the theoretical background and a coping model were presented, and terms relevent to the study were defined. Chapter II presents a review of the literature related to three psychosocial concepts - coping, competence, and quality of life. Studies related to psychosocial aspects of physical disability in India are also reviewed. Chapter III contains a description of the methodology and research design used in this research. A description of the American and the Indian sample obtained for the study and the measurement instruments used in the study are presented in Chapter III, and the hypotheses to be tested are stated. Chapter IV presents the results of the statistical analyses. In Chapter V, results of the statistical analyses are discussed, and limitations, implications, and recommendations of the study are reported.

CHAPTER II

REVIEW OF THE LITERATURE

This study deals with three interrelated psychosocial concepts - coping, competence, and quality of life--and their application to understanding psychosocial adjustment to a physical disability. Since the above three areas have become a focal point of study only recently, there is only a limited amount of relevant psychological and sociological literature available. The University Center for International Rehabilitation study group on coping with disability made a detailed survey of the available literature on the concepts. These reviews helped the group to develop operational definitions and the 'Coping with Disability Inventory'. Some of the relevant material is reviewed below under the headings coping, competence, and quality of life.

Coping

Prevalent views about coping were reviewed from literature on longitudinal developmental research, child populations at risk, psychology of disability, case studies of disability, psychological competence, and stress adaptation (Blom, 1982). These different perspectives of coping seemed to be influenced by whether the studies: 1) were derived from the study of normative or psychologically disturbed populations, 2) were influenced by the nature of inquiry and observation of disabled persons, and 3) dealt with differing duration, time of onset, and stability factors as represented by acute stress, chronic stress, or disabling conditions. In addition, different psychological models of personality are represented in these studies. The more conflict and pathology based studies are noted in psychoanalysis. Studies that focus on fulfillment and a health-wellness orientation are based in self-actualization theories.

White (1974) attempted to clarify the concept of coping as one of the strategies used in human adaptation. Adaptation is the overall concept and consists of the actions of living systems in interaction with their environments. Its purpose is not just to maintain psychological homeostatic balance, but also to foster growth and change. Human living systems can exhibit a great deal of autonomy from environment as well as being influenced by it. Mastery, coping and defense are all strategies of adaptation. In mastery (which is an achieved state), frustrations are surmounted and adaptive efforts achieve a successful conclusion. Coping involves new behavior, since a given problem defies a familiar way of responding to it behaviorally; coping is stimulated by meeting difficult adaptive conditions. White described a series of characteristics of coping behavior such as contending, striving, persisting, resisting, opposing, as well as being courageous and heroic.

Defense, according White (1974), is the response to danger and attack where anxiety is central. Defense mechanisms are adaptive devices to anxiety that have gone wrong. In the short range they may be adaptive but can cause trouble in the long run. Defending involves information reduction, cognitive constriction, and behavioral rigidity.

White viewed coping as a strategy or an adaptational process that can be distinguished from defending. These views seem to be influenced by his general psychological studies and studies of human lives that had a normative orientation. His interest in the natural development of competence and competency may have also contributed.

White's views are somewhat similar to Anthony (1975), Garmezy (1981), and Rutter (1979) who have reported behavioral characteristics of stress-resistant children. These children have adapted very well to sustained at-risk and markedly adverse life situations such as schizophrenic parents, depressed mothers, severe physical illness in the family, and inner city neighborhoods.

Garmezy (1981) described such children as having a series of "coping skills" such as hopefulness, control of affects and impulses, problem solving, and others. However, Garmezy referred to good and poor copers and at times used coping in a general sense for adaptive responses. "Good" involves a value judgment as to successful and satisfactory social and personal adaptive efforts. In addition to using coping as a skill and a general adaptive response, Garmezy refered to it as a pattern of response to novel situations, obstacles, and conflicts where search, effort, direct action, and forces that shape happenings occur. This use is similar to White and views coping as a process. Garmezy reviews the many ways in which coping is used and discusses problems in its definition. However, its close association with mastery, competence, adequate functioning, success, and satisfaction seems distinctive and to be distinguished from defenses.

The clearest distinction between coping and defending as adaptational responses to the environment and inner life was made by Haan (1977). The data base for her contributions is the longitudinal personality studies conducted in Oakland and Berkeley, California. In addition to coping and defending, Haan included fragmentation as part of the continuum. Fragmentation represents a failure to actively deal with or to protect against situations, feelings, and conflicts. Coping consists of an active psychological effort to overcome, master, and solve internal and external problems and dilemmas. It has characteristics such as flexibility, good perception, emotional tolerance, information seeking, interpersonal involvement, and confidence. In contrast, defending involves protection against feeling and knowing; equilibrium is maintained and efforts are restricted. Defending has characteristics such as rigidity, limited choice, irrationality, information reduction, emotional intolerance, intrapersonal concerns, and low confidence. These clear distinctions among coping, defending, and fragmenting do not imply that mixtures of these processes would not occur as a function of time, the nature of inner and outer events, and development.

Blom (1982) discussed the imbalances and consequences that have resulted from a pathology orientation to human behavior. He reviewed evidence on children and adults experiencing life stress from longitudinal developmental studies and risk research studies. Blom cited examples of coping children from a number of his collaborative studies on acute and chronic stress in childhood such as tonsillectomy, chronic illness, a school tragedy, and school children in at-risk situations. The school children were at risk because of a variety of conditions such as blindness, chronic physical illness, foster home placement, and other situations. Yet they were identified as doing remarkably well by teachers and principals. As a group, these children shared a number of behavioral characteristics--friendliness, acceptance by peers, talkativeness, success at school, sensitivity, insight, inner-directedness, self-reliance, and resistance to negative labels applied to themselves. These behaviors are similar to those reported on stress-resistant children. Blom supported the distinctions between coping and defending behaviors made by Haan (1977) and extended them by contrasting coping mechanisms with defense mechanisms defined in psychoanalytic terms.

Coping is characterized by Wright (1960, 1980) as positive striving, seeking solutions, discovering satisfactions, understanding oneself, reducing negative expectancies, viewing disability as a characteristic rather than an identity, and being involved in personal and environmental change. Kerr (1977) described a stage of adjustment to disability equivalent to coping as relinquishing the need for whole body intactness, accepting differentness, viewing disability as a body characteristic, and having a specialized philosophy of life. In a similar vein, Vash (1981) discussed a level of response to disability where the disability fades out of central focus. The idea of being non-ordinary and different are accepted by the person with a disability. The disability becomes a challenge for further growth and self-actualization.

While these characteristics of coping described by Kerr, Wright, and Vash are closely tied to disability, Haan (1977) identified other personality features from long-range longitudinal developmental studies. As stated earlier, these include seeking information, tolerating frustration, perceiving rationally, expressing feelings with control, accepting consequences, imagining creatively, responding flexibly, and believing in one's own power to influence events.

However, an individual, including persons with disability, will not always cope with the same or different life situation(s) at a given time. There may be times and situations when defending and/or fragmenting will exist. Adaptive processes are influenced by the strength and presence of internal and external factors that impede or facilitate adapting. Yet, when a longitudinal time perspective is taken in disability, a predominant process may stand out.

Competence

A review of the literature (Kulkarni, 1982) indicated that coping and competence are often used interchangeably instead of being differentiated from one another in terms of process behaviors (coping) and outcome behaviors (competence). Definitions of competence differ in their emphasis on such things as cognitive capacities, information processing skills, effective problem solving, and environmental mastery. In applying the concept of competence to disability, it is most relevant to focus on social competence, a psychological outcome state involving interpersonal behavior acquired as a result of many successful adaptive encounters with the social environment in the process of development (White, 1963). Socially competent human beings are viewed as active and self-regulating, assessing their own capacities, and initiating action or working out strategies to meet changing environmental circumstances. Individuals bring personal cultural beliefs, individual meanings, cognitive processes, and overt behaviors to environmental interaction. Social initiative facilitates interactional processes and social competence develops through a variety of interactions with the human environment. If an encounter with the environment is viewed as successful, feelings of competency and mastery are reinforced. A series of such encounters develops self-confidence and strengthens self-esteem. Disability is often associated with relative loss of or diminished functional ability in certain areas of living. A socially competent person will view this as a challenge and be stimulated to deal with its consequences by overcoming the problems posed by disability by finding workable solutions, such as changing one's self or changing the environment or both. Success in dealing with such problems enhances a person's competence through a feeling of efficacy.

Quality of Life

Positive adaptation and adjustment to life in general and to disability-related concerns specifically involve important subjective feeling states in addition to coping and competence. These positive states in life and living have been captured by concepts such as: happiness, good morale, spirituality, positive self-esteem, satisfactions, well-being, gratifications, hope, contentment, fulfillment, high-level wellness, meaningfulness, productivity, creativity, and comfortableness (Blom, 1982). A small number of studies refer specifically to positive feeling states in the lives of persons with disabilities (Anderson, 1982; Cameron, et al. 1973; DeJong, 1982; Vash, 1981; Wright, 1975).

Quality of life is an umbrella concept that includes a variety of positive feeling states. Such states are difficult to define and measure. They are probably highly intercorrelated with meanings that are often similar. Quality of life has been an area of study primarily researched by social and political scientists on "normative" or general populations. Only recently has this become the concern and domain of inquiry for the behavioral scientist working specifically on studies of persons with disabilities.

Campbell (1976, 1978) reviewed some of the attempts to define and measure well-being and quality of life. The emphasis on outside, visible world (objective) criteria of well-being does not necessarily correspond to the inside, personal world (subjective) experience of people's lives. This experience is influenced by culture, historical context, and personality views. A number of areas for the measurement of quality of life have been suggested:

1) A cognitive component where a comparison is made between actual life situations and aspired, expected, and deserved ones (Cantril, 1971);
2) an affective aspect that deals with feeling states in daily life (Bradburn, 1969);
3) an index of perceived stress, negative affects (degree and

frequency of depression and anxiety), or mental health (Gurin, Veroff and Feld, 1961);

4) happiness according to different domains of life satisfactions.

Dimensions of life satisfactions have been developed from the use of a critical incident technique in relation to important positive and negative life happenings (Flanagan, 1980, 1982). These dimensions measure the extent to which personal needs and wants are met. Five major dimensions have been described: physical and material well-being, relations with other people, social-community-civil activities, personal development and fulfillment, and recreation. The critical incident technique has yet to be used with a large sample of people with a range of disabilities to determine if their dimensions of satisfactions are similar to or different from able-bodied persons.

Coping/Competence/Quality-of-Life Studies of Disabled Populations

There have been a number of studies on disabled populations that have focused on coping, competence, and quality of life. Adams and Lindemann (1975) described contrasting behavioral responses and outcomes to spinal cord injury in two late adolescent boys with quite similar pre-accident resources and interests. They were both followed in a rehabilitation program. One individual maintained a firm conviction that he would walk again and that an operation would result in a magical cure; his parents reinforced both magical expectations and resentful disappointment. Over time, he remained depressed, uncooperative with helpers, demanding, and complaining of pain. He lived at home in a chronically unhappy state. The other individual had initial hope that he would walk again, which later served as a basis of courage to deal with his future life. His parents supported him at times of disappointment, despair, and anxiety. Over time, he dealt with issues of attending college, living away from home, and marriage. The authors indicated that the first adolescent clung to the sick role, while the second made the shift to accepting being permanently different as well as translating psychological insight into new behaviors.

In a long-range study of cancer patients, Weisman (1979) indicated that "a surprisingly large number...cope very well" with the illness, treatment, secondary problems, uncertainty, and death. He outlined a series of psychosocial processes that the person with cancer goes through over time - existential plight, mitigation and accommodation, decline and deterioration, and preterminality and terminality. These processes more or less parallel the biological process of the cancer. Weisman differentiated between individuals who cope with these processes by actively seeking to understand events and dealing with stressors and those individuals who defend against similar events by protective and avoiding behaviors. He indicated that there is a relationship between coping behavioral strategies and an appropriate death outcome. Coping strategies included rational inquiry, sharing with others, confrontation, consideration of alternatives, seeking and using help, self-reliance, problem solving, and maintaining hope. In contrast, defending strategies included supression, distraction, fatalism, impulsivity, substance misuse, withdrawal, projection and introjection of blame, and passive compliance. These latter strategies tended to be associated with an inappropriate death outcome. Treatment interventions often involved shifting defending strategies to coping ones.

A series of questionnaire studies by Cameron, Titus, Kostin, and Kostin (1973) found that when responses of disabled persons were compared to those of matched normals, no differences were found in life satisfaction, frustration with life, and mood. There was evidence that persons with disability were less suicidal, more religious, and more oriented toward others, even though they felt their lives were more difficult. No differences were noted between persons with congenital and acquired disabilities. The 190 persons with disability ranged in age from 12 to 81 years and included impairments such as blindness, hearing impairment, amputations, physical malformations, and motor paralysis.

Weinberg and Williams (1978) also distributed questionnaires to a selected group of persons with physical disabilities attending a White House Conference on the Handicapped in Illinois. Eighty-three questionnaires were analyzed. It was found that 66% of this sample lived independently, 60% thought of their disability as a fact of life, and 49% considered disability at times as an advantage. These persons did not view disability as a great tragedy and emphasized things that could be done and achieved. However, a limitation to this study was that the sample was a selected one and not representative of physically disabled young adults in general.

DeJong (1982) developed a life productivity score to measure quality of life. He studied persons with spinal cord injuries and developed measures of independent living and productivity using a panel of professionals with disability as raters. Out of this process, a productivity index was developed that consists of employment, schooling and training, organization participation, homemaking, and actual leisure recreation. A scoring system was devised to rank subjects on a most, moderate, and least productive dimension.

As long ago as 1940, Kammerer published a monograph studying adolescents with scoliosis and osteomyelitis (who experience potential crippling effects) in comparison to "normal" children. No unique influences were found from the disability on intelligence, maladjustment, and occupational choice. Macgregor, Abel, Bryt, Lauer and Weissmann (1953) reported a psychosocial study of 74 children and adults with facial deformities and disfigurement. Those rated by staff as markedly deformed judged themselves less severely so. Those persons with slight to moderate deformities tended to have excessive concerns about their appearance. Concerns about disfigurement were highest during adolescence. Molinaro (1978) reported no correlation between the extent of social withdrawal and the degree of disfigurement from burns in children.

Personal reports of disabled adults document findings of life satisfaction as well (Anderson and Holstein, 1981; Bernstein, 1976; Campling, 1981; Kleinfield, 1979; Roth, 1981). These disabled adults emphasized positive characteristics to their lives such as: active leisure, opportunities for travel, outside-of-home activities, helping other people, family support, belonging to disabled groups, adequate standard of living, employment, friendships, positive challenges, community involvement, available psychic energy, sense of humor, managing emotional distress, problem solving, and social participation.

Psychosocial Aspects of Physical Disability in India

As stated earlier, the psychosocial aspects of physical disability have not been the focus of attention for disability-related research in India. In the last 20 years, a number of studies have been undertaken to research rehabilitation problems of the physically disabled. Most of these studies make only a passing reference to the psychological aspects of physical disability. There are only a few studies that have made some atempt to research the psychological problems of the physically disabled. None of these studies have concentrated on the coping process in physically disabled persons.

Bhatt (1962), in her comprehensive survey of the problems of the physically disabled in India, (the first such study to be undertaken) sampled 500 physically disabled persons from the cities of Bombay, Ahmedabad, and Poona. She found that only 15% of the physically disabled had a normal reaction to their disability. About 35% felt inferior because of their disability, 32% felt insecure, and 11% felt shameful and guilty. There was no correlation between the cause of physical disability and psychological adjustment. The degree of maladjustment was greater in the severely disabled (76% of 161 persons) in comparison to those who had a minor disability (66% of 214 persons). The degree of adjustment was greater in those who were disabled in their childhood than those who became disabled after reaching adulthood. The study found that the longer the duration of the disablement, the better the degree of adjustment. Acceptance by the family and friends and renumerative employment significantly contributed to psychological adjustment to disability. Nearly 62% of those studied believed that their disability was a result of their deeds in a previous life or because of their fate. In other words, they attributed their disability to their 'karma'.

Parikh et al. (1975) made a study of the attitudes of 470 orthopedically handicapped persons towards their disability and the problems. These orthopedically handicapped persons attended the out-patient department of a large general hospital in Ahmedabad, mainly to get the disability certificate needed for the economic aid given by the government and by the local authorities for education, traveling concessions, and employment privileges. The study was done over a period of 4 years from 1970 to 1974. These persons were mostly from the poor or the lower class. It included many school and college-going students. There were 334 males and 136 females in the study. The age range was from 9 years to 24 years. Of the 470, 70 percent of the patients had polio myelitis, 6.5 percent were amputees, 6 percent had spinal deformities, 3.5 percent were arthritis sufferers, and about 15 percent had miscellaneous orthopedic conditions. Among other things, the investigators found that 50 percent of these persons had fears about their financial status. Though family cooperation and sympathy were present in almost all cases, 60 percent of the subjects felt that they were a useless person at home. Nine percent said it is better to have a fatal illness than to live the life of a crippled person. Twenty percent were constantly worried about their future—that family members might not love, cooperate with, or finance them as before. Thirty percent of the subjects stated that their parents encouraged them to achieve personal independence. A majority of the subjects (76 percent) had achieved independence in activities of daily living. Social visits with friends was the major leisure activity. A few had employment. A vast majority of these persons had never been to a surgeon before. The authors made a plea for educating the community and making provision for 'total care' services to disabled persons attending general hospitals.

In a study conducted to test the presence of neuroticism in physically disabled persons, Singh et al. (1980) compared the scores on Kapur's Neurotic Scale Questionnaire of 20 physically disabled persons with normals in a matched sample. They reported that 40% of all physically disabled persons showed neuroticism compared to 10% of normals. The disabled were found to be more sensitive and depressed but not more anxious than normal. The authors felt that sensitivity was due to overprotection, indulgence, and sheltering by the family. Depression and other psychological problems were due to environmental and social change as a result of the disability and the subjects' attitude toward their disability.

Krishnachandra (1980), in a comprehensive survey of 60 paraplegics and 150 amputees conducted in Ahmedabad over a 17-month period, found only 35% of paraplegics and 16% of amputees having a normal emotional state. The remaining disabled persons manifested depression, anxiety, and mild to severe negative attitudes toward their disability.

Summary

This chapter presented a critical review of the literature concerned with three psychosocial concepts--coping, competence, and quality-of-life. The review of literature indicated that there are not many studies that have attempted to explain coping process in disabled persons. Wright (1960) made the first attempt at explaining the adjustment process in a disabled person using the concept of coping. She viewed coping as seeking solutions and discovering satisfactions in living. Kerr (1977) and Vash (1981) presented views similar to those of Wright in discussing the psychosocial adjustment process in disabled persons. Haan (1977) further clarified the concept of coping by contrasting it with processes such as defending and fragmenting. Although Haan based her concepts of coping on the personality studies of nondisabled persons, her findings could be equally applied to the coping process in disabled persons.

White (1963) clarified the concept of competence and further described competence as a product of the coping process. Blom (1982) described positive feeling states reflected in quality-of-life and expressed the view that quality-of-life is an outcome of the coping process. The writings of Campbell (1977) and Flanagan (1980, 1982) support Blom's concept of quality-of-life.

A number of studies of disabled populations that deal with aspects of coping, competence, and quality-of-life were reviewed. Weisman (1979) outlined the psychosocial process that a person with cancer goes through and described coping behavioral strategies used by the cancer patients in dealing with their disease process. A questionnaire study by Cameron et al. (1973) found no differences in life satisfaction, frustration with life, and mood in disabled persons, and matched normals. Weinberg and Williams (1978) survey of 83 physically disabled persons attending a White House conference found that a majority of these persons did not view disability as a great tragedy and emphasized things that could be done and thrived. DeJong (1982) evaluated the quality-of-life of disabled individuals through measures of independent living and life productivity. Several studies were cited that dealt with life satisfactions of disabled persons.

A survey of the literature on psycholsocial aspects of physical disablity in India indicated a dearth of studies that specifically dealt with psychosocial aspects of adjustment to physical disability. Of the four studies cited, three were based on survey questionnaires. Bhat (1962) Parikh et al. (1975), and Krishnachandra reported the incidence of psychosocial problems of disabled persons included in their studies. A fourth study by Singh et al. (1980) dealt with a comparison of the incidence of neuroticism in 20 physically disabled persons with a matched sample of normals.

The review of the literature indicated that there was a dearth of specific research that focused on the coping process in disabled persons, in both the United States and India. Perhaps this lack of research focus was due to a lack of measures of the coping process in disabled persons.

CHAPER III

DESIGN OF THE STUDY

This research study was designed to validate the Coping with Disability Inventory on a sample of physically disabled adults from the United States and concurrently to standardize the Coping Inventory on a sample of physically disabled adults from India. The American sample was obtained from Lansing and surrounding areas of central Michigan. The Indian (India) sample was obtained from the city of Ahmedabad in Gajarat State of India. The criteria for selecting subjects for the study and the procedures for collection and analysis of data are presented below.

Subjects

The following criteria were used for selecting the sample for the study:

(a) The subjects selected for the study were physically disabled persons above the age of 18 years with either physical (orthopedic) or sensory (visual or hearing) disablilities. Mentally ill and mentally retarded persons were excluded from the study.

(b) The disability must have existed for at least 3 years and was reasonably considered to be stabilized with stable functional capacities. Chronically physically disabled persons were included in the study if they fit the age criteria.

(c) Those persons having progressively disabling conditions due to metabolic disorders, such as progressive loss of vision due to diabetes, were not included in the study. Similarly, those with progressive terminal diseases, such as cancer, were excluded from the study.

The subject population for the study was composed of adult American and Indian disabled persons who volunteered to take part in the study. The U.S. sample of physically disabled adults was obtained from the city of Lansing and other nearby mid-Michigan cities. The greater Lansing area has a population of about 500,000. Lansing is the Capital of the state of Michigan. Michigan State University and the Oldsmobile plants of General Motors Corporation are situated in the Lansing area. Grand Rapids, Ann Arbor, and Plainwell were other nearby cities from which subjects were obtained for the study. Grand Rapids, the second largest city in the state of Michigan (the first largest city is Detroit), is situated 60 miles west of Lansing. Ann Arbor is situated 60 miles east of Lansing and is home of the University of Michigan. Plainwell, a small town of 7,000 located 60 miles southwest of Lansing, is known for its state-run rehabilitation center for physically disabled persons.

To obtain the U.S. sample of physically disabled adults, the following five organizations in the above cities were contacted: (1) Center for Handicapper Affairs, Lansing, Michigan (voluntary organization of and for the physically handicapped); (2) State Technical Institute and Rehabilitation Center, Plainwell, Michigan (rehabilitation and training center run by the Michigan Rehabilitation Services, state of Michigan); (3) Independent Living Center, Ann Arbor, Michigan (voluntary organization promoting independant living skills in disabled persons); (4) Center for Independent Living, Grand Rapids, Michigan (voluntary, non profit organization sponsored by the Pine Rest Rehabilitation Center of Grand Rapids, Michigan); (5) Rehabilitation Medicine Clinic, Clinical Center, Michigan State University, East Lansing, Michigan (an out-patient Rehabilitation Medicine Clinic, administered by the College of Osteopathic Medicine, Michigan State University).

As stated earlier, the Indian sample was obtained in the city of Ahmedabad, India. Ahmedabad is a cosmopolitan city with a population of 3 million and is the commercial and industrial capital of the state of Gujarat. The city is known for its educational institutions and welfare-oriented voluntary organizations. In recent years, several rehabilitation programs and special institutions for physically disabled persons have been set up in Ahmedabad, mainly through private efforts.

The investigator contacted the following five organizations to obtain the Indian sample: (1) Andhajana Kalyan Kendra Ahmedabad. (the Center for Welfare of Blind Persons- -voluntary organization for the welfare of blind persons which runs hostels for blind persons in Ahmedabad); (2) the Society for Physically Handicapped, Ahmedabad (voluntary organization of and for physically disabled persons which works for the amelioration of their problems); (3) Apanga Manava Mandal, Ahmedabad (Association of Physically Disabled Persons--a voluntary organization which conducts a residential special school for physically disabled children, a vocational training program, and a center for preparing artifical limbs and adapted appliances); (4) Physio-Occupational Therpy Center, Ahmedabad (private clinic for rehabilitative treatment of physically disabled persons of all ages); and (5) Apanga Manava Seva Sangh, Ahmedabad (Association for Service to Physically Disabled Persons--a voluntary organization of disabled persons working toward resolution of their problems).

Both the American and Indian samples were nonrandomized and obtained as a convenient sample. The sample obtained also turned out to be heterogeneous in nature. The characteristics of both the American and Indian sample are presented in Table 3.1. Table 3.2 contains the physical characteristics defined by the diagnostic categories represented in both the samples, their respective frequencies, and their percentage with respect to the total group.

Some of the salient characteristics of both samples are summarized below. The American sample was a slightly older group; the mean age was about 4 years higher than the Indian sample. The sex ratio in the American sample was almost equal. In the Indian sample, males outnumbered females in a ratio of almost 2:1. In the American sample, even though a majority of the sample consisted of those who acquired their disability in childhood or sometime thereafter, a significant number (34.8 %) of the sample had been congenitally disabled. The congenitally disabled persons accounted for only 15.2% of the Indian sample. In both samples, a large part of the group (58.7% of the American sample; 63.6% of the Indian sample) belonged to lower-income groups. Nevertheless, 63% of the American sample and 69.7% of the Indian sample had spent at least a year or two in college. Only 17.4% of the American sample came from low-income families, while 82.6% of the sample came from the families that had attained middle-class income status at one time or another. In contrast, 42.4% of the Indian sample came from low-income families, and the remaining 57.6% of the sample came from families that had attained middle-class income status. Parents of the subjects in the American sample were generally well educated; 71.3% of mothers and 65.2% of fathers had completed at least their high school education. In the Indian sample, 33.3% of mothers and 15.2% of fathers had never been to school. None of the mothers had gone beyond 1 to 3 years of high school education, with 54.5% having only elementary-level education. Fathers were slightly better educated, with 24.2 percent having attained at least high school graduation. Of the American sample, 82.3% belonged to the least restrictive living group and 78.3% could be categorized as most productive. In the Indian sample, almost half of the subjects (48.5%) came from the moderately restrictive group and 24.2% from the least restrictive group. Nevertheless, 63.3% of the Indian sample belonged to the most productive group. Healthwise, 84.8% of subjects in the American sample and 100% of the Indian sample fell into the "good health" category.

A wide range of diagnostic categories were represented in the American sample. These included cerebal palsy, arthritis, hemiplegia, spinal cord injury, multiple sclerosis, dwarfism, amputations, hearing

Table 3.1 Sample Characteristics

Sample Variables	American Sample	Ahmedabad (India) Sample
Total number of subjects	46	33
Age:		
mean	34.37	30.72
range	19 to 78 years	18 to 70 years
Sex:		
males	22 (47.8%)	24 (72.7%)
females	24 (52.2%)	9 (27.3%)
Onset of disability:		
congenital	16 (34.8%)	5 (15.2%)
acquired after birth	30 (65.2%)	28 (84.8%)
Stability of Disability		
stable	23 (50.0%)	27 (81.8)
moderately stable	11 (23.9%)	3 (9.1)
fairly stable	7 (15.2%)	3 (9.1)
moderately unstable	3 (6.5%)	0
unstable	2 (4.3%)	0
Education completed:		
elementary	0	5 (15.2%)
1-3 years of high school	3 (6.5%)	2 (6.1%)
high school graduate	9 (19.6%)	1 (3.0%)
1-3 years vocational training	5 (10.9%)	2 (6.1%)
1-3 years college	15 (32.6%)	5 (15.2%)
4 or more years college	14 (30.4%)	18 (54.5%)
Type of educational experience:		
mainstreamed	41 (89.1%)	23 (69.7%)
segregated	3 (6.5%)	7 (21.2%)
both	2 (4.3%)	3 (9.1%)
Annual personal income:		
In U.S. $ or Indian Rupees:		
10,000 and below	27 (58.7%)	21 (63.6%)
10,000-20,000	9 (19.5%)	6 (18.2%)
20,000-30,000	7 (15.2%)	5 (15.2%)
over 30,000	3 (6.5%)	1 (3.0%)
Mother's education:		
not educated	1 (2.2%)	11 (33.3%)
elementary	3 (6.5%)	18 (54.5%)
1-3 years high school	9 (19.6%)	4 (12.1%)
high school graduate	20 (43.5%)	0
1-3 years vocational training	3 (6.5%)	0
1-3 years college	6 (13.0%)	0
4 or more years in college	4 (8.7%)	0

Table 3.1 (Continued)

Sample Variables	American Sample	Ahmedabad (India) sample
Father's education:		
not educated	1 (2.2%)	5 (15.2%)
elementary	5 (10.9%)	10 (30.3%)
1-3 years high school	10 (21.7%)	10 (30.3%)
high school graduate	14 (30.4%)	4 (12.1%)
1-3 years vocational training	3 (6.5%)	0
1-3 years college	5 (10.9%)	1 (3.0%)
4 or more years in college	8 (17.4%)	3 (9.1%)
Highest annual income attained by family of Origin:		
In U.S. or Indian Rupees:		
10,000 and below	8 (17.4%)	14 (42.4%)
10,000 - 20,000	15 (32.6%)	12 (36.8%)
20,000 - 30,000	15 (32.6%)	2 (6.0%)
over 30,000	8 (17.4%)	5 (15.2%)
Independent living index		
least restrictive group	38 (82.6%)	8 (24.2%)
moderately restrictive group	7 (15.2%)	17 (51.6%)
most restrictive group	1 (2.2%)	8 (24.2%)
Productivity index		
most productive group	36 (78.3%)	21 (63.6%)
moderately productive group	10 (21.7%)	12 (36.4%)
Health index (including disability related health)		
good health	39 (84.8%)	33 (100%)
fair health	7 (15.2 %)	0

Table 3.2 Diagnostic Distribution for the American and Ahmedabad (India) Samples

Diagnostic Categories (reported by subjects)	American Sample		Ahmedabad (India) Sample	
Cerebral Palsy	6	(13.0%)	2	(6.1%)
Spinal Cord Injury	1	(2.2%)	0	
Paraplegia	1	(2.2%)	4	(12.1%)
Hemiplegia	2	(4.3%)	1	(3.0%)
Quadraplegia	3	(6.5%)	0	
Fracture Upper Extr.	1	(2.2%)	0	
Fracture Lower Extr.	3	(6.5%)	1	(3.0%)
Unilateral Up. Extr. Amputee	1	(2.2%)	0	
Bilateral Up. Extr. Amputee	0		2	(6.1%)
Unilateral Lo. Extr. Amputee	0		1	(3.0%)
Bilateral Lo. Extr. Amputee	2	(4.3%)	1	(3.0%)
Arthritis	3	(6.5%)	1	(3.0%)
Juvenile Rh. Arthritis	2	(4.3%)	0	
Post-Polio Paralysis	3	(6.5%)	14	(42.4%)
Muscular Dystrophy	1	(2.2%)	0	
Multiple Sclerosis	1	(2.2%)	0	
Transverse Myelitis	1	(2.2%)	0	
Legally Blind	4	(8.7%)	4	(12.1%)
Profound Hearing Loss	1	(2.2%)	0	
Cong. Cleft Lip and Palate	1	(2.2%)	0	
Ankylosis	1	(2.2%)	1	(3.0%)
Closed-Head Injury	1	(2.2%)	0	
Misc. Orthopedic Condition	1	(2.2%)	1	(3.0%)
Intervertebral Disk	2	(4.3%)	0	
Dwarf	3	(6.5%)	0	
Brain Tumor	1	(2.2%)	0	

loss, blindness, muscular dystrophy, etc. In the Indian sample diagnostic distribution was not that wide--42.4% of the Indian sample belonged to the one diagnostic category of post-polio paralysis. Other major diagnostic caregories were: paraplegia (12.1%), amputations (15.1%), blind (12.1%), and miscellaneous orthopedic conditions (19.1%). The diagnostic categories of multiple sclerosis, dwarfism, and profound hearing loss were not represented at all in the Indian sample.

Research Design and Statistical Analyses

The primary objective of the present study was to establish reliability and validity characteristics of the Coping with Disability Inventory as a tool for evaluating coping behavior. In additon to the above primary objective, the present research had subsidiary objectives aimed at studying relationships between coping behavior, as measured by the Coping with Disability Inventory, and other demographic and independent variables. These variables included: sex, age of acquirement of disability, stability of disability, educational experiences (mainstreamed or segregated), level of education, annual personal income, mother's education, father's education, living arrangements, productivity, and health status.

In this study, the data obtained from the American sample was primarily utilized for establishing the reliability and validity of the research instrument. The Indian part of the study was a pilot to standardize the research instrument for further development in India (i.e., examining its utility and laying down procedures).

There are three methods of obtaining reliability estimates. These are: (1) stability based (test-retest), (2) equivalence based (parallel form), and (3) internal consistency based. According to Mehrens and Lehmann (1978), reliability estimates based on stability are most important for instruments used to predict or select, such as aptitude tests, where stability of aptitude scores is important. For achievement tests, where inferences about a person's mastery of essential skills/and or knowledge of a particular domain are to be made, equivalence reliability estimates are essential. If one wishes to obtain a measure of a transient personality characterstic (such as temporary depression) one might look for internal consistency reliability. Mehrens and Lehman (1978) suggest that, regardless of whether a stability or equivalence method is used, all instruments should be tested for internal consistency, as it indicates the homogeneity of content. Both stability and equivalence estimates require two sets of data, but, internal consistency estimates can be obtained only from a single set of data.

For the present study, reliability of the test instrument was assessed using a test of internal consistency and item total correlations. Due to the time and distance factors involved, it was not feasible to obtain more than a single measure of the subjects' performance on the Coping with Disability Inventory. Thus, this study obtained its reliability estimates from a single set of test data. As the coping inventory is constructed in a "Likert"-type, five-point rating scale, Cronbach's coefficient alpha was used as the appropriate procedure in estimating the reliability. Reliability coefficients were calculated for both the American and the Indian samples. A value of at least .75 was considered necessary for a scale to be judged internally consistant.

Of the two ways of ascertaining validity, criterion-related and construct, criterion-related validity was most applicable to this study. The establishment of criterion-related validity involves correlating scores obtained on the new test with those obtained on an older, already validated and highly rated test (criteria). There are two types of criterion-related validity: concurrent validity and predictive validity. The former is obtained by concurrently testing a group of subjects on the new test and the criterion. Predictive validity is established by first testing a group of subjects with the new test and then later with the criterion (Mehrens and Lehmann, 1978).

According to Anastasi (Anastasi, 1968), concurrent validity is relevant to tests employed for diagnosis of existing status, rather than prediction of future outcomes. Since the coping inventory deals with the classification of copers (high copers and low copers), concurrent validity was considered to be most applicable to this study. Haan's California Psychological Inventory-based "Ego (Coping) Scales" (Haan, 1977) were used as the criteria for establishing the concurrent validity.

The concurrent validity was established only for the American sample. For establishing concurrent validity, Pearson product moment correlations were computed along with multiple regressions.

For the Indian sample, it was not possible to establish the concurrent validity, as neither the California Psychological Inventory nor any other culturally adapted test was available for use as the criterion. Instead, a validity check was conducted by utilizing the data obtained from interviewing selected subjects from the Indian sample. For this purpose, five subjects from the Indian sample were selected for a detailed interview that was based on a specially developed interview schedule. (See Appendix B for the interview schedule.)

Nominal data were collected on demographic and other independent variables, mentioned earlier. For working out the relationships between these variables and the Coping with Disability Inventory scores, a high coping score was defined as that above 1 standard deviation from the mean and a low coping score as that below 1 standard deviation from the mean. Where the variables could be dichotomized, the phi coefficient was obtained. Where the variable had more than two levels, a chi-square analysis was used to test for significant differences.

In all the above statistical procedures, the various hypotheses were tested at 0.05 level of significance. The computer programs used for these analyses were all part of the "Statistical Package for the Social Sciences (SPSS)." The analyses were computed at Michigan State University on the CDC6500 computer.

The research design and methodology utilized in this study led to the following limitations in terms of internal and external validity. The factors that might have affected internal validity are as follows. First, the internal validity of the study was affected by the fact that the study was based on volunteers. Therefore, the significant differences that might have arisen due to such self-selection could not be controlled in this study. Second, the testing procedure for this study required, on average two hours of administration. Though the procedures were standardized, adequate provision had to be made for each subject's fatigue tolerance, in view of their differing disability-related physical stamina. The subjects were permitted to have a break as and when they felt the need. The above factor affected the standardization of intersession history. Similarily, intersession history could not be controlled totally when administration of the test was done at the subject's residence or his or her office, for the sake of their convenience.

The main threat to the external validity in this study arose from the use of nonrandomized samples. Because the sample obtained was a convenient sample, there is a delimitation in generalizing the results of the study to the larger universe. In view of the above limitations, this study can be generalized only to those disabled individuals who have characteristics similar to the subjects included in the study.

Although this study has two different samples taken from two different cultures, i.e., the American and the Indian culture, it was never intended to be a cross-cultural research study. However, some across the sample comparisions were planned as part of the study to find out whether the need exist for further indepth studies. It should be born in mind that the two samples do not match each other. Further, an additional factor was introduced in the intersession history, when a Gujarati standardized version of the Coping with Disability Inventory had to be prepared for the subjects in the Indian sample, who did not have sufficient versatility in the English language. These above factors affect the finding of the study based on the comparisions of the two samples.

Procedures for Collecting Data

In order to obtain the U.S. sample, administrative authorities in the five organizations described earlier in the section on the subjects were contacted, and their assistance was sought for getting in touch with physically disabled persons to take part as subjects in the study. These organizations supplied the investigator with a list of disabled persons who were willing to take part in the study and even helped in arranging the interviews on their premises.

The disabled persons were either contacted by phone or through a letter (Appendix C) and their cooperation was solicited for the study. Those willing to participate in the study were asked to sign a consent letter (Appendix D). Prior to obtaining the consent letter, the purpose of the study was explained and any doubts were clarified. They were assured of confidentiality and that the data obtained would be kept securly in a place were it would only be available to the investigator. In order to ensure further confidentiality, only initials of the subjects were used on all the written materials. At the end of this procedure, subjects were administered the Coping with Disability Inventory and the California Psychological Inventory, in that order. In the case of blind persons and persons who were unable to write, the investigator or his aides had to personally assist them in filling out the inventory. In the initial phases of the study, the subjects were asked to fill in inventories in a one-to-one situation. In the later part of study, however, where feasible, the inventories were administered to subjects in groups. The size of the group varied from 3 to 8 subjects. When administering the test in the group, the investigator had the assistance of his coping study group associates, who were trained in the administration of the tests. Because of their assistance, it was possible to provide individual assistance to each subject when the tests were administered in the group.

At the end of its administration, the subjects were informed that those requesting a report of the study, would be sent an abstract of the study when it was completed.

For obtaining the sample at Ahmedabad, India, the office bearers (i.e., executive officers) of the five organizations stated earlier in the section on "subjects" were contacted, and their assistance was solicited for getting in touch with physically disabled persons who would be suitable subjects for the study. A list of English-speaking physically disabled persons was requested first. Since some difficulty was experienced in contacting a sufficient number of English-speaking subjects within the limited time of three months, it was decided to also include in the study some of the disabled persons who had a limited working knowledge or no knowledge of English.

Once the list was obtained, procedures similar to those used in the American sample were utilized in contacting the disabled persons, administering the inventory, and maintaining the confidentiality of the data obtained. As stated earlier, the California Psychological Inventory was not administered to the Indian subjects, as this inventory had not been adapted for the Indian culture. In view of the above, it was decided to do only a validity check, using data obtained from interviewing of five selected subjects. (Originally, it was planned to interview at least five subjects by selecting every sixth subject in the sample. Due to the unavailability of the first and the sixth subjects, this order could not be adhered to. Finally, 7th, 12th, 17th, 22nd, and 27th subjects were selected for a detailed interview). These interviews were audio-tape recorded and were transcribed at the end of the interview. The tapes were erased as soon as the interview transcriptions were written. Confidentiality procedures, similar to those used with the inventory were maintained for the interview material. The typed interviews were rated on the Coping with Disability Inventory by a judge who was selected from the professional staff of the B.M. Institute of Mental Health, Ahmedabad, and rehabilitation professionals in other organizations in Ahmedabad. The interview was also separately rated by the investigator. (Due to difficulties in getting volunteer judges, the attempt to obtain two independent raters was abandoned.)

Since it was difficult to get sufficient numbers of English-speaking, physically disabled persons in Ahmedabad, a standard Gujarati translation of the coping inventory was made. For the Gujarati translation, the following procedures were followed: A psychiatric social worker with a background in rehabilitation work who was well versed in both English and Gujarati translated the Coping with Disability Inventory in to Gujarati. After obtaining the Gujarati translation, an occupational therapist with 20 years experience in rehabilitation of disabled persons, well versed in both English and Gujarati, and who had not seen the original English version of the inventory, was requested to retranslate the Gujarati version into English. The original Coping Inventory and the retranslated English version were compared. As there was more than 75% compatibility in both versions, the Gujarati translation was considered as a standard translation of the Coping Inventory and it was used with those physically disabled persons who were not well versed in the English language. Whenever the investigator administered the Gujarati version of the Coping with Disability Inventory to a person who was not well versed in English, he, without exception, made sure that a rehabilitation professional well versed in both English and Gujarati was always available. Access to such a person ensured proper communication in case the subject had difficulty in following the Gujarati version of the Coping with Disability Inventory. Such a necessity, fortunately, arose only four times. In the case of English-speaking subjects, the interviews were conducted either at the subject's home or in a room provided by the B.M. Institute of Mental Health. Non-English-speaking subjects were usually seen on the premises of the organization from which they had been selected for the study. Most of these administrations were done in a one-to-one situation. While interviewing a non-English-speaking subject, however, a person knowing both English and Gujarati was present during the session.

Measuring Instruments

Two measures were used in this study: the Coping with Disability Inventory (See Appendix A) and the California Psychological Inventory were used on the U.S. sample. In addition, the Interview Schedule for Stress/Coping (See Appendix B) was used for the detailed interview of selected subjects in the Indian sample.

The study used the Coping with Disability Inventory as the primary research instrument for collection of data for both the American and and the Indian sample. The California Psychological Inventory, however, was only administered to the subjects from the American sample, as this instrument was mainly used for generating coping scores based on Haan's method for the purpose of establishing the concurrent validity of the research instrument. Both the instruments are briefly described below.

(a) Coping with Disability Inventory Instrument Schedule

The Coping with Disability Inventory, the primary research tool used in this study, was an outcome of the research efforts of the coping study group of the University Center for International Rehabilitation. The coping study group developed the Coping with Disability Inventory as part of its larger plan for the study of coping behavior among physically disabled persons. From the time of initiation of the project in 1980, the study group worked over a period of three years to develop and pilot test the inventory as a measure of the coping process in physically disabled persons. Prior to initiation of the present study to establish the reliability and concurrent validity of the Coping with Disability Inventory, it had undergone several revisions to refine it and to establish its inter-rater reliability and content validity.

As part of the present study, the Coping with Disability Inventory Schedule was developed (See Appendix A for Inventory Schedule), which consisted of three sections. The first section was entitled 'Demographic Information' and collected data on the following variables: Sex, age, type and description of disability, list of adaptive devices used by the subject, age of onset/acquirement, stability of disability rating, physical consequences of disability rating, education completed, educational experiences (i.e., mainstreamed or segregated education), vocational rehabilitation experiences, and annual personal income. Except for the stability of disability rating and physical consequences of disability rating, the data collected on other variables was mostly historical and factual in nature. The information about the diagnostic categories was obtained from the subjects and was not based on medical diagnosis. The scores obtained on the stability of disability and physical consequences of disability were self-ratings and thus reflected the subject's perception in those areas. The statistical information about the data collected under this section has been presented already in Tables 3.1 and 3.2.

The second section was denoted 'Daily Living Information' and was used for collecting pertinent background information about the subjects and their daily lives. The following background information was collected on the subjects: mother's education, father's education, highest income range attained by the family of origin, and the occupation of the main wage earner in the family. The information on daily lives of the subjects was used to construct the Independent Living Index, the Productivity Index, and the Health Index.

The Independent Living Index was constructed out of information collected under the subsection "current living arrangements." The Independent Living Index was worked out according to the formula developed by DeJong (1981), which is illustrated in Table 3.3. The distribution of the sample according to the three categories of the Independent Living Index (presented earlier in Table 3.1) are shown in Table 3.3 for quick reference. These statistics indicate that the majority of the American subjects, i.e., 82.6 percent (38 subjects) belonged to the least restrictive living group; 15.2 percent of the subjects (7 subjects) came from the moderately restrictive living group; and only 2.2 percent (1 subject) from the 'most restrictive' living group. In the Indian sample a majority of subjects, i.e., 51.6 percent (17 subjects), came from 'moderately restrictive' living group; 24.2 percent (8 subjects) belonged each to the 'least restrictive living' group and the 'most restrictive' living group.

Similarly, the Productivity Index was constructed according to the formula developed by DeJong (1981). The Productivity Index formula and outcomes for the American and Indian sample are presented in Table 3.4. The Productivity Index was based on the following information collected about the daily lives of the subjects: current employment, current education or training, organizational membership (disability and

Table 3.3 Independent Living Index Outcomes for Both the American and the Indian Samples.

Living Arrangement Outcomes	Restrictiveness Group	American Sample	Indian Sample
Lives with spouse, "significant other" and/or children Lives alone Lives with friends, unrelated persons, and/or siblings	I. Least restrictive	38 (82.6)	8 (24.2)
Lives with parents and with spouse and/or children Lives with relatives such as grandparents, uncles, aunts or adult children Lives with parents or with parents and siblings	II. Moderately restrictive Group	7 (15.2)	17 (51.6)
Lives in an institution	III. Most Restrictive Group	1 (2.2)	8 (24.2)

(The above table was partially adopted from Table 6.3 page no. 100 of De Jong, G., Environmental accessibility and independent living outcomes: Directions for disability policy and research. East Lansing: University Center for International Rehabilitation, Michigan State University, 1981.)

Table 3.4 Productivity Index Outcomes for Both the American and the Indian Samples

Activities					Productivity Group	American Sample	Indian Sample
	Was person participating in:						
Employment	School	Organizations	Homemaking	Leisure			
Yes (full-time)	Participated in at least 1 but not all 3 activities			Yes	I. Most Productive Group	36 (78.3)	21 (63.6)
Yes (part-time)	Participated in at least 2 out of 3 activities			Yes			
No	Yes	Yes	Yes	Yes			
No	Yes	No	Yes or No	Yes	II. Moderately Productive Group	10 (27.7)	12 (36.4)
No	No	Yes	Yes	Yes			
No	No	No	Yes	15 times per month			
No	No	Yes	No	Yes			
No	No	No	Yes	15 times per month			
No	Participated in at least 1 but not both activities		No	No	III. Least Productive Group	0	0
No	No	No	No	6 times per month			
No	No	No	No	6 times per month			
No	No	No	No	No			

a. To be considered employed full-time, a person had to be working at least 32 hours per week.
b. No distinction was made in the data file as to whether a person went to school full-time or part-time; a person's participation in educational activity was the main consideration.
c. Organizations included both disability-related and nondisability-related organizations.
d. Homemaking activities included one or more of the following: meal preparation, house-cleaning, food shopping, and supervising children or dependent adults.
e. Leisure activities included both active and passive leisure.

(The above table was partially adopted from Table 6.2 page no. 102 of De Jong, G., Environmental Accessibility and independent living outcomes: Directions for disability policy and research. East Lansing: University Center for International Rehabilitation, Michigan State University, 1981).

Table 3.5 Health Index (Combined for Disability-related Health and General Health). This table presents below the formula for calculating the Health Index and the four Health Index categories. It also presents Health Index outcomes for both the American and the Indian samples.

Self-Evaluation of Health Status	Self-Evaluation of Disability Affecting Health	Inactive Days Past 3 months		Bed Restriction Days Past 30 days		Hospital Days Past 1 Year		Score
		Disability Related	Non-Dis. Related	Disability Related	Non-Dis. Related	Disability Related	Non-Dis. Related	
Very good	No	- -	- -	- -	- -	- -	- -	1
Good	Yes	Not more than 4 days	Not more than 4 days	Not more than 2 days	Not more than 2 days	Not more than 7 days	Not more than 7 days	2
Fair	- -	More than 4 but less then 7 days	More than 4 but less than 7 days	More than 2 but less than 5 days	More than 2 but less than 5 days	More than 7 but less than 21 days	More than 7 but less than 21 days	3
Poor	- -	More than 7 but less than 10 days	More than 7 but less than 10 days	More than 5 but less than 7 days	More than 5 but less than 7 days	More than 14 but less than 21 days	More than 14 but less than 21 days	4
Very Poor	- -	More than 10 days	More than 10 days	More than 7 days	More than 7 days	More than 21 days	More than 21 days	5

Criterion for Health Index (Total)

			American Sample		Indian Sample	
Cumulative Scores up to 10	= Good Health	= Level I	39	(84.8%)	33	(100%)
Cumulative Scores from 11 to 20	= Fair Health	= Level II	7	(15.2%)	0	0
Cumulative Scores from 21 to 30	= Poor Health	= Level III	0	0	0	0
Cumulative Scores above 31	= Very Poor Health	= Level IV	0	0	0	0

nondisability related), and the amount of time spent in the household and on leisure time activities. It can be seen from the statistics that the majority of the American subjects, i.e., 78.3 percent (36 subjects), belong to the most productive group and only 27.7 percent (10 subjects) belonged to the 'moderately' productive group. In the Indian sample 63.6 percent (21 subjects) belonged to the 'most productive' group and 36.4 percent (12 subjects) belonged to the 'moderately productive' group. None of the subjects, in both the samples, came from the 'least productive' group.

The Health Index formula was specifically developed for this study, as no suitable formula to measure the health status of physically disabled persons was available. Ideas proposed by Sullivan (1966) and Lubin et al. (1972) were utilized in developing the Health Index. The Health Index was based on the subject's self-rating of perceived health and the effect of disability on health, and on behavioral evidence of ill health, i.e., the incidence of absence from normal routine and hospitalization. A point system was developed to calculate the Health Index (combining disability related health and general health) on the basis of the above information. On the basis of this scoring method, four health categories, ranging from 'good health' to 'very poor health', were developed. Table 3.5 presents the method for calculating the Health Index and the four Health Index categories. It also gives the Health Index outcomes for both the American and the Indian sample for quick reference. The statistics show that in the American sample 84.4 percent belonged to the 'good health' group and only 15.7 percent belonged to the 'fair health' group. All the subjects in the Indian sample came from the 'good health' group.

The third section consisted of the inventory itself, titled 'Disability Adjustment Questionnaire' which has a total of 80 items. The inventory has two subscales. One contained 37 process behavior (coping) items and was denoted as the Process Subscale. The other contained 43 outcome behavior items (representing social competence and quality of life) and was denoted as the Outcome Subscale.

Figure 3.1 presents six behavior items (Process) from the coping inventory. All the items in this figure, except the starred item, are examples of items where a rating of 4 (often/frequent) or 5 (almost always) represents coping. There are 27 similar coping items. The starred item in the figure is one of the 5 behavior items where a rating of 1 (never/rarely) or 2 (seldom) is associated with coping. These items represent noncoping behaviors.

Figure 3.2 contains six items from the Outcome Subscale where a rating of 4 (often/frequent) or 5 (almost/always) is expected for social competence and positive quality of life. There are 32 similar items. In addition, the inventory has five items where a rating of 1 (never/rarely) or 2 (seldom) is associated with competence and quality of life. These represent noncompetence and poor quality-of-life behaviors. The inventory consists of 25 competence items and 18 quality-of-life items.

The Coping with Disability Inventory is a self-rating inventory. Each item has a range of 1 to 5. The negative items (5 noncoping behavior items and 5 noncompetence and poor quality-of-life behavior

Number	Behavior Item	Ratings Never/ Rarely 1	Seldom 2	Sometime 3	Often/ Frequently 4	Almost Always 5
P-01	I seek and obtain specific information to solve problems.					
P-05	I am willing to take calculated risks.					
P-16	I back away from difficult situations.					
*P-20	I feel helpless in dealing with my disability					
P-26	I consider myself to be the source of control over events in my life.					
P-28	I evaluate my behavior by my own internal standards.					

Figure 3.1. Coping with Disability Inventory - Process Subscale: Examples of Process Items.

Number	Behavior Item	Ratings				
		Never/ Rarely 1	Seldom 2	Sometime 3	Often/ Frequently 4	Almost Always 5
0-01	I obtain information about my body in relation to my disability.					
0-04*	As a result of my disability I tend to view life as having both purpose and meaning.					
0-09	I can tolerate anger directed towards me.					
0-13	I hold on to my opinions even though others may not agree.					
0-25	I accept that my body looks and functions differently from others.					
0-23*	I am able to obtain material comforts.					

*Quality of life behavior item.

Figure 3.2. Coping with Disability Inventory - Outcome Subscale: Examples of Outcome (Competence and Quality-of-Life) Items.

items) are reversed for the purpose of scoring, i.e., 1 = 5 points, 2 = 4 points, 3 = 3 points, 4 = 2 points, and 5 = 1 point. All other items are rated as is, i.e., 1 = 1 point, 2 = 2 points, etc. Any refusal to respond to an item results in an automatic 1 point.* To get the total coping score, the total number of points for each subscale (process and outcome subscales) is added, and then the sum of the two sub totals i.e, process score + outcome score equals the total Coping with Disability Inventory (CDI) score. The inventory has a total of 80 items with a maximum possible CDI score of 400 points.

(b) Haan's California Psychological Inventory Based Ego (Coping) Scales

Haan (1977) has developed coping scales based on the items from the California Psychological Inventory, which was developed by Harrison G. Gough (1975). The inventory was first used in 1956 and since then has been widely used as a psychological inventory. The California Psychological Inventory has a reliability range of .44 to .87 for its 18 subscales. It has been rigorously tested for its validity with several other psychological tests and is accepted as a valid personality instrument. The validity scores of the California Psychological Inventory subscales range from -.78 to +.63. According to

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* (An automatic 1 point was given because it was felt that giving 0 point for a unanswered question would mean that the behavior was totally lacking. This was not the fact. On the other hand, if an unanswered question was given a neutral score, i.e., 3 points, in turn it would mean the behavior occurred some times, which was not the fact either. Thus, it was decided to settle for 1 point, which is the minimum on the scale and indicates that the behavior occurred rarely or never.)

Anastasi (1968) the California Psychological Inventory, is one of the best personality inventories currently available. Haan has developed 10 coping subscales based on the California Psychological Inventory. Summation of these subscales provides a 'total coping' score. In addition, Haan has developed two other coping scales known as 'controlled coping' and 'expressive coping' scales based on the California Psychological Inventory.

For validation of the Coping with Disability Inventory, the California Psychological Inventory was administered in its entirety and was scored according to Haan's method to obtain the coping scores. The California Psychological Inventory is a self-rating inventory with 480 items. Each item is a self-evaluative statement that is answered as 'true' or 'false' by the subject. Haan selected and grouped items from the inventory to form the coping subscales. Table 3.6 gives the titles of the 10 coping subscales that added together form the 'total coping' scale and the number of items in each subscale. The number of items differ for males and females in each of these subscales. The table also gives similar information about the other two coping scales, i.e., the controlled coping and the expressive coping. Haan developed these two coping scales by factor analyzing the 'total coping' scale. Controlled coping has high loadings on substitution, supression and concentration. Expressive coping has high loadings on regression in the service of ego, empathy and tolerance of ambiguity.

Haan's coping scales have undergone repeated reliability and validity tests (Haan 1977). By 1977 approximately 30 studies had been completed using Haan's method. Details about the reliability and

Table 3.6 Salient Features of Haan's California Psychological Inventory Based-Ego (Coping) Scales.

CPI-based Ego (Coping) Scales	No. of Items Male	No. of Items Female
Total Coping (Sum of 10 Subscales):		
Objectivity	36	31
Intellectuality	35	35
Logical Analysis	33	32
Concentration	33	34
Tolerance of Ambiguity	38	32
Empathy	35	29
Regression in the Service of Ego	34	35
Sublimation	35	34
Substitution	31	32
Supression	37	35
Total Items	347	329
Controlled Coping:	41	39
Expressive Coping:	42	38

Reliability of Haan's Coping Scales (based on KR-20): Reliability mean = .70; Range = $.48 \leqslant r \leqslant .81$.

Validity Coefficients of Haan's Coping Scales with CPI Scales:

Mean of Validity Coefficients = .70

Range for Validity Coefficients: $.35 \leqslant r \leqslant .75$ ($p \leqslant .05$).

validity of Haan's coping scales are also presented in Table 3.6. Theabove data indicate that Haan's coping scales have fairly acceptable reliability and validity.

In addition to the above two measures, as stated earlier, this research utilized an interview schedule on stress and coping for obtaining interview data from a few selected Indian subjects. This interview data was used to make a validity check on the Coping with Disability Inventory. The 'Interview Schedule on Stress and Coping for Adult Handicappers' (Appendix B) was developed by the study group on coping and was initially used by the group for the pilot study of the coping process in adult physically disabled persons.

Hypotheses

This study investigated and attempted to answer the research questions raised in Chapter I. Based on the research questions proposed in Chapter I, the following hypotheses were investigated in the study.

Reliability of the Coping With Disability Inventory

H_1: The internal consistency of the total items of the Coping with Disability Inventory will be sufficiently high to infer the homogeneity of the coping construct in physically disabled persons.

H_2: The internal consistency of the two subscales of the Coping with Disability Inventory will be sufficiently high to infer that these scales are measuring outcome and process coping behaviors in physically disabled persons.

The above two hypotheses were tested for both the American and Indian sample.

Validity of the Coping with Disability Inventory

H_{3a}: There will be a positive correlation between the Coping with Disability Inventory scores and the scores obtained from Haan's California Psychological Inventory based Ego (coping) Scales.

The above hypothesis (Hypothesis 3a) was only applied to the American sample, since, as stated earlier, the criterion, i.e., Haan's coping scales, are standardized only for the American population. Only a validity check was conducted on the Coping with Disability Inventory scores obtained from the Indian sample. For the Indian sample, the following hypothesis, H_{3b}, was investigated:

> There will be a positive correlation between the scores obtained on the Coping with Disability Inventory and the scores based on the Interview Schedule on Stress and Coping for Adult Handicappers.

Relationships Between the Coping with Disability Inventory Scores and Other Demographic and Independent Variables

In addition to the primary objective of establishing the reliability and the validity of the research instrument, the present study attempted to answer the research questions pertaining to high/low coping scores and other demographic variables. Ten hypotheses were developed to test the above-stated relationships. These hypotheses were tested both on the American and the Indian samples.

H_4: There will be no relationship between the sex of the subjects and the low/high coping scores obtained on the Coping with Disability Inventory.

H_5: Congenital and acquired disability will not significantly correlate with low and high copers on the Coping with Disability Inventory.

H_6: There is a systematic relationship between high stability of disability ratings and high copers on the Coping with Disability Inventory.

H_7: Level of education will have a systematic relationship with high or low copers on the Coping with Disability Inventory.

H_8: There will be a positive correlation between mainstreamed educational experience and high copers on the Coping with Disability Inventory.

H_9: the level of personal income will have a systematic relationship with low/high copers on the coping with - Disability inventory.

H_{10}: There will be a systematic relationship between the level of mother's or father's education and low and high copers on the Coping with Disability Inventory.

H_{11}: High level on the Independent Living Index will positively correlate with high copers on the Coping with Disability Inventory.

H_{12}: High level on the Productivity Index will positively correlate with high copers on the Coping with Disability Inventory.

H_{13}: High level on the Health Index will positively correlate with high copers on the Coping with Disability Inventory.

Chapter IV

Analysis of Results

This chapter presents the analysis of the data collected from the American and Indian (from India) samples and the results relating to the main purpose of the study. The main purposes of the study were, as stated earlier, to establish the reliability and the validity of the Coping with Disability Inventory (CDI) on a representative sample from the United States and to pilot test it on an Indian sample. In compliance with these purposes test results of hypotheses pertaining to reliability and validity are first presented. In later sections, test results pertaining to hypotheses concerning relationships between the Coping with Disability Inventory scores (CDI Scores) and demographic and other independent variables are presented. Each hypothesis is restated and the results of the analysis are then presented.

Test of the Hypotheses

Hypotheses Related to the Reliability Study

Hypothesis I: The internal consistency of the total items of the Coping with Disability Inventory will be sufficiently high to infer the homogeniety of the coping construct in physically disabled persons.

The internal consistency of the research instrument was determined by computing Cronbach's Coefficient Alpha. The total scale coefficient alpha was .883 for the American sample and .750 for the Indian sample. The reliability coefficient of .883 shows that up to 88.3 percent of the variance in the test for the American sample was measuring the subjects' actual coping behavior, and only 11.7 percent was due to chance or error. For the Indian sample, 75.0 percent of the variance in the test was measuring the subjects' actual coping behavior and 25.0 percent was due to chance or error. A reliability coefficient of .883 is considered fairly high for a self-report instrument; while the reliability coefficient of .750 is considered as reaching the level of acceptance. All reliability tests are summarized in Table 4.1.

Table 4.1 Internal Consistency of the Coping with Disability Inventory for Total Score and Subscale Scores: Cronbach's Alpha (N=46 American Sample; N=33 Indian Sample).

Coping with Disability Inventory	No. of Items	Cronbach's Alpha American Sample	Cronbach's Alpha Indian Sample
Total Scale	80	.883	.750
Subscale: Outcome	43	.825	.714
Subscale: Process	37	.779	.406

In addition to obtaining the reliability of the inventory, corrected item-total correlations, and "alpha if item deleted," statistical analyses were computed to see whether each item positively correlated with the total. The corrected item-total correlation is obtained by correlating each item with the total scale score computed from other items in the test. The item-total correlation reflects the contribution of each item to the reliability of the test. A positive item-total correlation indicates tht the item is contributing to the reliability. Conversely, a negative item-total correlation indicates that the item is not at all contributing to the reliability. The "alpha if item deleted" statistics indicate the changes that take place in the coefficient alpha for the test if that particular item is deleted from the test. If alpha alters significantly downwards on deletion, it suggests that the specific item is highly contributing to the reliability. If alpha moves upwards, then it is an indication that the item is negatively contributing to the reliability. The item-total correlations for the CDI items ranged from -.308 to .693 for the American sample. There were 13 items that negatively correlated with the total. In the Indian sample item-total correlations ranged from -.456 to .742. There were 16 items that negatively correlated with the total. The item-total correlations and "alpha if item deleted" statistics for the negatively correlated items are presented in Table 4.2 for both the American and Indian samples. Since the obtained coefficient of alpha was in the acceptable range, the hypothesis of internal consistency and homogeniety of the Coping with Disability Inventory was upheld for both the American and Indian samples.

<u>Hypothesis II</u>: The internal consistency of the two subscales of the Coping with Disability Inventory will be sufficiently high to infer that these scales are measuring outcome and process coping behaviors in physically disabled persons.

Table 4.1 provides Cronbach's alpha coefficients obtained for the

Table 4.2 'Item-total Correlations' and 'alpha if item deleted' statistics for negatively correlated items of the Coping with Disability Inventory for the American and the Indian Samples.

		Corrected item-total correlations		Alpha if item deleted	
Item Numbers	Items	American Sample	Indian Sample	American Sample	Indian Sample
0-01	I obtain information about my body in relation to my disability.	----	-.026	----	.755
0-05	I think about my disability.	-.250	----	.888	----
0.08	I let go of activities and personal goals that are not realizable due to my disability.	-.085	----	.885	----
0-12	I experience emotional stress.	-.176	-.341	.886	.764
0-13	I hold on to my opinion even though others may not agree.	-.062	-.305	.885	.762
0-14	I consider my disability an inconvenience.	----	-.012	----	.754
0-15	I feel that I have to be on guard in interaction with others.	-.264	----	.887	----
0-17	I use fantasy and imagination to develop options and opportunities in my life.	----	-.036	----	.754
0-27	I pay close attention to my body.	-.228	-.163	.888	.754
P-07	I see opportunities in my life as limited.	-.283	----	.888	----
P-08	I use professional assistance when needed.	----	-.159	----	.756
P-13	I am cautious in my behavior.	-.307	-.007	.887	.751
P-15	I find myself complying to expectations of others.	----	-.456	----	.768
P-16	I back away from difficult situations.	-.245	----	.887	----
P-17	I like receiving compliments and recognition from other people.	----	-.041	----	.754
P-20	I feel helpless in dealing with my disability.	----	-.140	----	.755
P-22	I attribute my disability to fate.	----	-.092	----	.758
P-23	I display my emotional				

Table 4.2 (Continued)

Item Numbers	Items	Corrected item-total correlations: American Sample	Corrected item-total correlations: Indian Sample	Alpha if item deleted: American Sample	Alpha if item deleted: Indian Sample
P-22	I attribute my disability to fate.	----	-.092	----	.758
P-23	I display my emotional reactions to stressful situations.	----	-.278	----	.760
P-24	I try to influence the direction of events toward personally determined goals.	-.012	-.028	.884	.752
P-30	I experience sadness.	-.303	----	.886	----
P-31	I experience fear.	-.226	-.157	.886	.755
P-35	I experience grief in relation to my disability.	-.308	-.078	.888	.755

Note: O = indicates outcome subscale item.
P = indicates process subscale item.

outcome and the process subscale on both the American and the Indian samples. On the American sample, the reliability coefficient was .825 for the outcome subscale and .779 for the process subscale, both of which are within the level of acceptance. Table 4.2 shows that for the American sample, 6 outcome items and 7 process items were negatively correlated with the total.

On the Indian sample, the outcome subscale had the reliability coefficient of .714 and .406 for the process subscale. The coefficient of .714, though slightly below the required level, could still be considered acceptable. But the coefficient of .406 obtained for the process subscale would be considered below the level of acceptance. Table 4.2 shows that for the Indian sample, 6 outcome items and 10 process items were negatively correlated with the total.

In view of the above results, the hypothesis regarding the internal consistency of the two subscales was accepted for the American sample. In the case of the Indian sample, the hypothesis of internal consistency was accepted for the outcome subscale, but not for the process subscale. The low reliability of the process subscale indicated that several items in the subscale need to be rewritten prior to its use in India.

Hypothesis Related to the Validity Study

Hypothesis IIIA: There will be a positive correlation between the Coping with Disability Inventory (CDI) scores and the scores obtained from Haan's California Psychological Inventory-based Ego (coping)

Scales (CPI coping scores).

As stated earlier, the above hypothesis was only applied to the American sample. In establishing concurrent validity, statistical analysis based on Pearson correlations and multiple regression analysis were utilized for testing the hypothesis. Table 4.3 gives the mean score and the standard deviation of each variable used in testing the hypothesis. Table 4.4 gives the data on Pearson correlations, and tables 4.5, 4.6, and 4.7 give the data on multiple regression analysis.

An examination of the Pearson correlation coefficients showed that the hypothesis regarding a positive correlation between the CDI scores and the Haan's CPI-based coping scores was upheld. A correlation as high as 0.531 with $p \leq .001$ between the CDI total score and Haan's total coping score signified a respectable concurrent validity for the research instrument. Both the outcome and the process subscales of the CDI had a high positive correlation with Haan's total coping scales. There was a direct relationship between the outcome (competence-quality of life) subscale and the controlled and the expressive coping scales. A similar relationship existed between the process subscale and the controlled and the expressive coping scales. However, the coefficients indicated a stronger relationship between the outcome subscale and the

Table 4.3 Mean Score and Standard Deviation of the Coping with Disability Inventory (CDI) Scores and Haan's California Psychological Inventory-Based (CPI) Coping Scores for the American Sample (N=46).

Variables	Mean	Standard deviation
Total CDI scale	283.457	27.258
Outcome (Competence-Quality of life) subscale (CDI)	154.304	16.543
Process subscale (CDI)	129.152	13.115
Controlled coping (CPI) scale	22.152	4.889
Expressive coping (CPI) scale	17.087	3.857
Total Coping (CPI) scale	181.087	23.035

Table 4.4 Pearson Correlations of the Coping with Disability Inventory (CDI) Scores with California Psychological Inventory Based (CPI) Coping Scores on the American Sample (N=46).

	Controlled Coping (CPI)	Expressive Coping (CPI)	Total (CPI)
Outcome			
(Competence-Quality of life) (CDI)	.409#	.286*	.436+
Process (CDI)	.355*	.411#	.555+
Total CDI	.419#	.371*	.531+

*p $\leqslant$ .05
#p $\leqslant$ .01
+p $\leqslant$ .001

controlled coping scale (with r = .409 at the .01 significance level). Likewise, there was a stronger relationship between the process subscale and the expressive coping scale (with r = .411 at the .01 significance level). When two variables are thus connected, if we know an individual's performance on one of the variables, we can reasonably predict performance on the second. It also indicates some association between the two variables.

A further documentation of an acceptable concurrent validity was obtained through multiple regression analysis. Table 4.5 presents the summary table of multiple regression analysis with the CDI total scores as the criterion variable. All three of Haan's coping scales were included in the equation as the predictor variables. A multiple R between the three predictor variables and the criterion (total CDI) was .646 (significant at the .001 level). This result could be interpreted as follows: With the best linear combination of independent variables (the three of Haan's CPI-based coping scales), if an individual's raw scores were multiplied with beta weights (beta weights are not reported in the table) and added together, one would obtain a predicted score on the CDI for the individual; and if a correlation were obtained between the predicted score and the score the individual actually received, the correlation would be .646. Thus, if one were predicting with these series of variables and with a coefficient this high, one is predicting a significant amount. The R^2 column indicates the amount of cumulative variance accounted for by each variable in the equation. The R^2 for all three variables is .418, which means that this combination of the variables accounted for 41.8 percent of the variance in the criterion

Table 4.5 Summary Table of Multiple Regression Analysis with the CDI Total Scores as the Criterion Variable and Haan's CPI Based Coping Scores as Predictor Variables

Dependent Variable: Total CDI scores.

Variable	F to Enter or Remove	Significance	Multiple R	R^2	R^2 Change	Simple R	Overall F	Significance
Controlled coping (CPI)	.60220	.442	.41223	.16994	.15338	.41945	7.37225	.001
Expressive coping (CPI)	1.14099	.292	.50686	.25691	.08697	.37178		
Total coping (CPI)	11.37960	.002	.64680	.41835	.16144	.53184		

Table 4.6 Summary Table of Multiple Regression Analysis with the CDI Outcome Scores as the Criterion Variable and Haan's CPI Based Coping Scores as Predictor Variables.

Dependent Variable: Outcome (Competence - quality-of-life) CDI scores.

Variable	F to Enter or Remove	Significance	Multiple R	R^2	R^2 Change	Simple R	Overall F	Significance
Controlled coping (CPI)	1.18812	.282	.41355	.17102	.17055	.40901	6.07360	.001
Expressive coping (CPI)	.81391	.372	.49008	.24018	.06915	.28650		
Total coping (CPI)	8.61220	.005	.60998	.37207	.13190	.43606		

Table 4.7 Summary Table of Multiple Regression Analysis with the CDI Process Scores as the Criterion Variable and Haan's CPI Based Coping Scores as Predictor Variables.

Dependent Variable: Process CDI scores

Variable	F to Enter or Remove	Significance	Multiple R	R^2	R^2 Change	Simple R	Overall F	Significance
Controlled coping (CPI)	.03109	.861	.37875	.14345	.08588	.33507	5.88304	.001
Expressive coping (CPI)	.98581	.327	.47175	.22255	.07910	.41131		
Total coping (CPI)	9.17075	.004	.60387	.36466	.14211	.55533		

variable, i.e., the variables reduced errors in prediction of the CDI total scores by 41.8 percent. The R^2 change column reflects the actual amount of variance accounted for by each variable as it is added to the regression equation.

Similar relationships were observed between the outcome and the process subscales and Haan's CPI-based coping scales. With the outcome scale as the criterion variable and Haan's three coping scales as the predictor variables, the multiple R was .609 with a significance level beyond .001 (see Table 4.6). This level of coefficient indicates that the predictor variables can predict a significant amount of the criterion variable. The R^2 for all three variables is 37.2 percent of the variance in the criterion.

Table 4.7 presents data about the multiple regression analysis with the process subscale as the criterion. The multiple R for the equation was .603 at the significance of .001, and R^2 was .364, which indicates that three predictor variables account for 36.4 percent of the criterion variance.

Thus, the above analysis upholds the hypothesis of a positive correlation between the CDI scores and Haan's CPI-based coping scores. Further, these relationships are shown to be at a statistically significant level.

Hypothesis H3B, which was concerned with the relationship between the CDI Scores and the scores based on the Interview Schedule on Stress and Coping for Adult handicappers for the Indian sample, was not statistically tested due to difficulties in getting volunteer judges to rate the transcribed interviews.

Relationship Between the Coping with Disability Inventory Scores and Other Demographic and Independent Variables

In addition to establishing the reliability and validity of the research instrument, this study attempted to establish the relationship between high/low coping scores and other demographic variables. For the purpose of statistical analysis, high copers were defined as those subjects whose scores were 1 standard deviation above the mean (i.e., those scoring 311 and above on the American sample and those scoring 313 and above on the Indian sample). Similarly, low copers were defined as those scoring 1 standard deviation below the mean (i.e.,those scoring 255 and below on the American sample and those scoring 269 and below on the Indian sample). Using the above definitions, contingency tables were worked out for each of the 10 hypotheses, which were stated earlier in Chapter III.

Where it was possible to build a 2 x 2 contingency table, a phi coefficient was computed to test the hypothesis, as it (Phi coefficient) is considered useful for assessing the degree of monotonic relationship between two variables when each variable is at the nominal level of measurement and is dichotomous, i.e. there are only two levels of each variable (Wood, 1977). Huck, et al., (1974) have interpreted the nature of the correlation in the following way:

+.95, +.85, +.93, +.87	high positive correlation
+.23, +.17, +.18, +.20	low positive correlation
+.02, +.01, .00, -.03	no systematic relationship
-.21, -.22, -.17, -.19	low negative correlation

-.92, -.89, -.90, -.93 high negative correlation

The above interpretation was adopted in this study. In additon, when the coefficient scores were in the range of +.30 to +.60, they were interpreted as indicating a moderate positive correlation. When they were above +.60, they were considered as being significant. When the variables had more than two categories, a chi-square test was used for testing the hypothesis. The chi-square test allows the investigator to assess whether the obtained frequencies show a systematic relationship between the variables.

Along with a chi-square test, Cramer's V was computed to examine whether any relationship exists between the variables. Cramer's V is slightly modified version of phi that is suitable for larger tables. When phi is calculated for a table that is not 2 x 2, it has no upper limit. Therefore, Cramer's V is used to adjust phi for either the number of rows or the number of columns in the table depending on which of the two is smaller. A large value of V merely signifies that a high degree of association exists, without revealing the manner in which the variables are associated. The results of the analysis pertaining to these hypotheses are presented below.

Hypothesis IV: There will be no relationship between the sex of the subjects and the low/high coping score obtained on the Coping with Disability Inventory.

The relationship between low coping/high coping and the two categories of sex (male and female) was examined by obtaining the phi coefficient. The relationship was revealed to have a phi coefficient

Table 4.8 Phi Correlational Analysis of the Relationship Between Low/high Coping and the Sex of the Subjects for the American Sample.

	Count	CDI Scores		Row
	Row Pct	Low Coping	High Coping	Total
	Col Pct			
	Tot Pct	1	2	
Sex				
Male		1	2	3
		33.3	66.7	27.3
		25.0	28.6	
		9.1	18.2	
Female		3	5	8
		37.5	62.5	72.7
		75.0	71.4	
		27.3	45.5	
	Column	4	7	11
	Total	36.4	63.6	100.0

Phi = .038

of .038 for the American sample. Table 4.8 gives the details of the correlational analysis. Since, the obtained phi shows no systematic relationship, it can be safely concluded that no direct relationship exists between low/high coping and the sex of the subjects. Thus, our hypothesis that sex of the subjects has no relationship with low/high coping was upheld for the American sample.

Table 4.9 presents details of phi correlational analysis of relationship between sex of the subjects and low/high coping scores for the Indian sample. The phi coefficient of .571 indicates that there coping ability. A look at the data indicates that there was a fairly large ratio of high coping female subjects in the sample as compared to males. The above result negated our hypothesis that there was no relationship between the sex of the subject and the low/high coping ability as far as the Indian sample was concerned.

Table 4.9 Phi Correlational Analysis of the Relationship Between Low/high Coping Scores and the Sex of the Subjects for the Indian Sample

	Count Row Pct Col Pct Tot Pct	CDI Scores Low Coping 1	 High Coping 2	Row Total
Sex				
Male		4 57.1 100.0 36.4	3 42.9 42.9 27.3	7 63.6
Female		0 0 0 0	4 100.0 57.1 36.4	4 36.4
	Column Total	4 36.4	7 63.6	11 100.0

Phi = .571

<u>Hypothesis V</u>: Congenital and acquired disability will not significantly correlate with low and high copers on the Coping with Disability Inventory.

The relationship between the age of onset of disability and the low and high copers was evaluated by computing the phi coefficient. The phi coefficient was worked out to be .214 for the American sample. Table 4.10 shows the details of the correlational analysis. The obtained phi indicates the presence of a low positive correlation between the age of onset of disability and the low and high copers. The result of the analysis showed that acquired disability (disability acquired in childhood or later years) had a greater possibility (although a low one) of leading to high coping as compared to one acquired at birth, as far as the American sample was concerned. Thus, the evidence suggested that the hypothesis of no relationship could not be held. However, it should be noted that a coefficient of .214, while statistically significant, does not have much practical meaning. The result could have been different if the number of subjects in the sample was larger.

Table 4.10 Phi Correlational Analysis of the Relationship Between the Age of Acquirement of Disability and Low and High Copers for the American Sample.

	Count	CDI Scores		Row
	Row Pct	Low Coping	High Coping	Total
	Col Pct			
	Tot Pct	1	2	
Age of onset of Disability		2	2	4
Congenital		50.0	50.0	36.4
		50.0	28.6	
		18.2	18.2	
Acquired		2	5	7
		28.6	71.4	63.6
		50.0	71.4	
		18.2	45.5	
	Column	4	7	11
	Total	36.4	63.6	100.0

Phi = .214

The details of the correlational analysis between the age of acquirement of the disability and the low and high coping ability for the Indian sample is presented in the Table 4.11. The phi coefficent was computed to be .356. The obtained phi indicates the presence of a

Table 4.11 Phi Correlational Analysis of the Relationship Between the Age of Acquirement of Disability and Low and High Copers for the Indian Sample.

	Count	CDI Scores		Row
	Row Pct Col Pct Tot Pct	Low Coping 1	High Coping 2	Total
Age of onset of Disability				
Congenital		0	2	2
		0	100.0	18.2
		0	28.6	
		0	18.2	
Acquired		4	5	9
		44.4	55.6	81.8
		10.00	71.4	
		36.4	45.5	
	Column	4	7	11
	Total	36.4	63.6	100.0

Phi = .356

positive but low correlation between the age of onset of disability and high coping. A close examination of the correlational analysis indicates that for the Indian sample, the congenitally disabled group has a higher possibility of leading to high coping as compared to the acquired disability group. The result did not support the hypothesis of no relationship between age of acquirement of disability and low and high coping ability. However, the relationship between congenitally acquired disability and high coping ability was not a strong one and, therefore, not of much practical value.

Hypothesis VI: There is a systematic relationship between high stability of disability ratings and high copers on the Coping with Disability Inventory.

The observed scores for the stability of disability rating (self-rating) for the American sample fell within three categories: stable, moderately stable, and fairly stable. (There were 5 possible levels: stable, moderately stable, fairly stable, moderately unstable, and unstable.) Since the variables had more than 2 categories, a 2 x 3 contingency table was developed and the chi-square and Cramer's V were computed.

Table 4.12 shows the details of the chi-square analysis. The obtained chi-square of .052 with 2 degrees of freedom did not exceed the critical value. Cramer's V of .069 did not show any significant relationship either. An examination of the data did not show any clear-cut trend of relationship between low or high stability ratings and low or high coping. Therefore, the hypothesis of systematic relationship between high stability of disability ratings and high copers could not be upheld for the American sample.

Observed scores for the stability of disability rating (self-rating) for the Indian sample fell within three categories of stable, moderately stable,

Table 4.12 Results of the Chi-square Analysis of the Stability of Disability Ratings with Low/high Coping Scores for the American Sample.

	Count Row Pct Col Pct Tot Pct	CDI Scores Low Coping 1	 High Coping 2	Row Total
Stability of Disability Rating				
Stable		2	3	5
		40.0	60.0	45.5
		50.0	42.9	
		18.2	27.3	
Moderately Stable		1	2	3
		33.3	66.7	27.3
		25.0	28.6	
		9.1	18.2	
Fairly Stable		1	2	3
		33.3	66.7	27.3
		25.0	28.6	
		9.1	18.2	
	Column Total	4	7	11
		36.4	63.6	100.0

Raw chi-square = .052 with 2 degrees of freedom Significance = .974
Cramer's V =.069

and fairly stable. A 2 x 3 contingency table was constructed for the obtained scores and the chi-square and Cramer's V were computed.

Table 4.13 shows the details of the chi-square analysis. The obtained chi-square of 2.357 with two degrees of freedom did not exceed the critical value. Cramer's V of .462 was not sufficiently high to show any significant relationship between the variable levels. A look

Table 4.13 Results of the Chi-square Analysis of the Stability of Disability Ratings with Low/high Coping Scores for the Indian Sample.

	Count Row Pct Col Pct Tot Pct	CDI Scores Low Coping 1	 High Coping 2	Row Total
Stability of Disability Rating				
Stable		4	4	8
		50.0	50.0	72.7
		100.0	57.1	
		36.4	36.4	
Moderatly Stable		0	2	2
		0	100.0	18.2
		0	28.6	
		0	18.2	
Fairly Stable		0	1	1
		0	100.0	9.1
		0	14.3	
		0	9.1	
	Column Total	4	7	11
		36.4	63.6	100.0

Raw Chi square = 2.357 with 2 degrees of freedom. Significance = .307
Cramer's V = .462

at the data showed that even the subjects with low stability of disability rating were good copers. In fact, the data showed that none of the subjects in moderately stable and fairly stable category were low copers. As such, no clear-cut trends were observed.

In view of these results, the hypothesis of a significant relationship between high stability of disability ratings and high coping ability was rejected for the Indian sample.

<u>Hypothesis VII</u>: Level of education will have a systematic relationship with low or high copers on the Coping with Disability Inventory.

For the purpose of chi-square analysis, education obtained by the subjects was categorized into 6 levels: elementary, 1-3 years in high school, high school completed, 1-3 years in college, 1-3 years in vocational training, and 4 or more years in college. From the American sample, none of the low or high copers fell in the elementary educational category. Since the variable had 5 levels, a 2 x 5 contingency table was prepared for the observed scores and the chi-square and Cramer's V were computed.

Table 4.14 presents the details of the analysis. The obtained chi-square of 5.238 with 4 degrees of freedom was not significant. The probability level of .263 is too high to be considered of any significance. The obtained Cramer's V of .690 showed a fair degree of association between the level of education and coping scores. In view of the indication of a high degree of association between the two variables, a phi correlational score was obtained by dichotomizing the educational level at high school graduation, i.e., one group consisted of those who completed high school or were below that level, and the other group consisted of those who had education above the high school graduation level. A phi value of .214 was obtained, which indicated that there was a low positive correlation between level of education and coping scores. Considering that there is only a low positive correlation between the two variables and the chi-square was not significant, the hypothesis of a systematic relationship between the

Table 4.14 Results of the Chi-square Analysis of the Level of Education with Low and High Coping Scores for the American Sample.

	Count	CDI Scores		Row
	Row Pct	Low Coping	High Coping	Total
	Col Pct			
	Tot Pct	1	2	
Educational Level				
1-3 Years High School		1	0	1
		100.0	0	9.1
		25.0	0	
		9.1	0	
High School		1	2	3
		33.3	66.7	27.3
		25.0	28.6	
		9.1	18.2	
1-3 Years College		1	2	3
		33.3	66.7	27.3
		25.0	28.6	
		9.1	18.2	
1-3 Years Vocational		1	0	1
		100.0	0	9.1
		25.0	0	
		9.1	0	
4 or More Years College		0	3	3
		0	100.0	27.3
		0	42.9	
		0	27.3	
	Column	4	7	11
	Total	36.4	63.6	100.0

Raw chi-square = 5.238 with 4 degrees of freedom. Significance = .263
Cramer's V = .690

variables was rejected for the American sample.

For the Indian sample, the observed scores fell within all the six categories stated above. A 2 x 6 contingency table was prepared for the observed scores and the chi-square and Cramer's V were computed. Table 4.15 presents the details of the analysis. The obtained chi-square of 8.119 with 5 degrees of freedom was just a few degrees below the required critical value with a probability level of .149. The obtained Cramer's V of .859 suggested a high degree of association between educational levels and low/high coping scores.

A phi correlational score was obtained for the Indian sample, as was done in the case of the American sample. The educational level was collapsed into two categories, those with an educational level of high school graduation or below falling in the first category and those with education beyond high school graduation in the second category. A phi value of .793 was obtained, which indicated a significant degree of positive relationship between the two variables, i.e., as the educational level decreased, the coping scores also decreased, and when the educational level increased, the coping scores also increased. Considering the obtained chi-square, the hypothesis of a systematic relationship between educational levels and low and high copers was rejected. However, the phi value and Cramer's V indicate that there is a strong degree of relationship between the levels of education and low/high coping scores. At the outset these results appeared contradictory. A close examination of the data, however, showed that the obtained chi-square was within the proximity of the desired critical value. In view of the above, one can conclude that, as far as

Table 4.15 Results of the Chi-square Analysis of the Level of Education with Low and High Coping Scores on the Indian Sample.

	Count Row Pct Col Pct Tot Pct	CDI Scores Low Coping 1	CDI Scores High Coping 2	Row Total
Educational Level				
Elementary		2	1	3
		66.7	33.3	27.3
		50.0	14.3	
		18.2	9.1	
1-3 Years High School		1	0	1
		100.0	0	9.1
		25.0	0	
		9.1	0	
High School		1	0	1
		100.0	0	9.1
		25.0	0	
		9.1	0	
1-3 Years College		0	1	1
		0	100.0	9.1
		0	14.3	
		0	9.1	
1-3 Years Vocational		0	1	1
		0	100.0	9.1
		0	14.3	
		0	9.1	
4 or More Years College		0	4	4
		0	100.0	36.4
		0	57.1	
		0	36.4	
	Column	4	7	11
	Total	36.4	63.6	100.0

Raw chi-square = 8.119 with 4 degrees of freedom. Significance = .149
Cramer's V = .859

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Table 4.16 Phi Correlational Analysis of the Relationship Between the Mainstreamed Educational Experience and High Copers for the American Sample

	Count Row Pct Col Pct Tot Pct	CDI Scores Low Coping 1	 High Coping 2	Row Total
Educational Experience				
Mainstreamed		4 40.0 100.0 36.4	6 60.0 85.7 54.5	10 90.9
Segregated		0 0 0 0	1 100.0 14.3 9.1	1 9.1
	Column Total	4 36.4	7 63.6	11 100.0

Phi = .239

this Indian sample was concerned, there is a direct relationship between high level of education and high coping ability.

Hypothesis VIII: There will be a positive correlation between mainstreamed educational experience and high copers on the Coping with Disability Inventory.

The relationship between the mainstreamed educational experience and high copers was evaluated by computing the phi coefficient. The phi coefficient for the American sample was worked out to be .239. Table 4.16 shows the details of the correlational analysis. The obtained phi indicated the presence of a low positive correlation

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between the mainstreamed educational experience and the high copers. Therefore, the hypothesis of a positive correlation between mainstreamed education and high copers was rejected for the American sample.

The details of the phi correlational analysis of the relationship between mainstreamed educational experience and high coping ability for the Indian sample are presented in Table 4.17. The phi coefficient was computed to be .133. As the obtained phi shows the presence of a very low positive correlation, it can be concluded that a very weak relationship exists between mainstreamed educational experience and high coping ability as far as the Indian sample is concerned. In view of the above, the hypothesis of a positive correlation for the two variables was rejected for the Indian sample.

<u>Hyothesis IX</u>: Level of personal income will have a systematic relationship with low/high copers on the Coping with Disability Inventory.

Annual personal income earned by the subjects was categorized into 7 levels for the purpose of statistical analysis. These 7 levels were as follows: 0-5 thousand; 5-10 thousand; 10-15 thousand; 15-20 thousand; 20-25 thousand; 25-30 thousand; and those earning above 30 thousand annually. For the American subjects, the annual personal income was worked out in terms of dollars, while for the Indian subjects it was calculated in terms of rupees (India's official currency; in terms of the purchasing power, the Indian rupee more or less has same value as the dollar may have in America).

Table 4.17 Phi Correlational Analysis of the Relationship Between Mainstreamed Educational Experience and High Copers for the Sample from India.

	Count Row Pct Col Pct Tot Pct	CDI Scores Low Coping 1	 High Coping 2	Row Total
Educational Experience				
Mainstreamed		3 33.3 75.0 27.3	6 66.7 85.7 54.5	9 81.8
Segregated		1 50.0 25.0 9.1	1 50.0 14.3 9.1	2 18.2
	Column Total	4 36.4	7 63.6	11 100.0

Phi = .133

For the American sample, low-high copers could be categorized into 4 categories for annual personal income. None of the subjects fell in the categories of 10-15 thousand, 15-20 thousand, above 30 thousand for annual personal income. Since the variable had 4 levels, a 2 x 4 contingency table was prepared for the observed scores for computing the chi-square and the Cramer's V.

Table 4.18 gives the details of the analysis. The obtained chi-square of 1.060 with 3 degrees of freedom was much below the critical value. The Cramer's V with value of .310 showed a low degree of association between annual personal income and low and high coping

Table 4.18 Results of the Chi-square Analysis of Annual Personal Income with Low and High Copers on the Coping with Disability Inventory for the American Sample.

	Count	CDI Scores		Row
	Row Pct	Low Coping	High Coping	Total
	Col Pct			
	Tot Pct	1	2	
Annual Personal Income				
0-5		1	4	5
		20.0	80.0	45.5
		25.0	57.1	
		9.1	36.4	
5-10		1	1	2
		50.0	50.0	18.2
		25.0	14.3	
		9.1	9.1	
20-25		1	1	2
		50.0	50.0	18.2
		25.0	14.3	
		9.1	9.1	
25-30		1	1	2
		50.0	50.0	18.2
		25.0	14.3	
		9.1	9.1	
	Column	4	7	11
	Total	36.4	63.6	100.0

Raw chi-square = 1.060 with 3 degrees of freedom. Significance = .786
Cramer's V = .310

scores. In view of these findings, the hypothesis of a systematic relationship between the two variables was rejected for the American sample.

In the sample from India, the observed scores of annual personal

Table 4.19 Results of the Chi-square Analysis of Annual Personal Income with Low and High Copers on the Coping with Disability Inventory for the Sample from India.

	Count	CDI Scores		Row
	Row Pct	Low Coping	High Coping	Total
	Col Pct			
	Tot Pct	1	2	
Annual Personal Income				
0-5		4	1	5
		80.0	20.0	45.5
		100.0	14.3	
		36.4	9.1	
5-10		0	3	3
		0	100.0	27.3
		0	42.8	
		0	27.3	
15-20		0	2	2
		0	100.0	18.2
		0	28.6	
		0	18.2	
20-25		0	1	1
		0	100.0	9.1
		0	14.3	
		0	9.1	
	Column	4	7	11
	Total	36.4	63.6	100.0

Raw chi-square = 7.542 with 3 degrees of freedom. Significance = .056
Cramer's V = .828

income fell in the following four categories: 0-5 thousand; 5-10 thousand; 15-20 thousand; and 20-25 thousand rupees. None of the low/high coping subjects fell in the income level of 10-15 thousand; 25-30 thousand; or above 30 thousand rupees. Since there were 4 levels of annual personal income, a 2 x 4 table was worked out for computing the chi-square and Cramer's V. Table 4.19 shows the analysis of the data. A chi-square value of 7.542 with 3 degrees of freedom was obtained. Although the obtained chi-square did not exceed the critical value at 0.05 significance level, it exceeded the critical value at 0.10 significance level. The Cramer's V with a value of .828 showed a high degree of association between annual personal income and low and high copers. Fairweather et al. (1974) suggest that in pilot research studies or studies of an exploratory nature, it is admissible to accept a significance level of 0.10 if a hypothesis cannot be accepted at a 0.05 level of significance. Accordingly, the hypothesis of a systematic relationship between the annual personal income level and low/high coping scores was upheld at the 0.10 level of significance. In other words, in the sample from India, subjects with a low level of annual personal income tended to fall mostly in the low coping category, while subjects with a high level of personal income tended to be mostly in the high coping category. Such association was further confirmed by the obtained high value of Cramer's V.

Hypothesis X: There will be a systematic relationship between the level of the mother's or father's education and low and high copers on the Coping with Disability

Inventory.

For the purpose of analysis, education obtained by the mother or father was categorized into 7 levels. These levels were as follows: no education, elementary, 1-3 years in high school, high school completed, 1-3 years in vocational training, 1-3 years in college, and 4 or more years of college education.

In the case of the American sample, for low and high coping subjects, the observed scores for mother's education fell into the following 5 categories: elementary, 1-3 years in high school, high school completed, 1-3 years in vocational training, and 1-3 years of college education. A 2 x 5 chi-square analysis was performed and Cramer's V was computed.

Table 4.20 presents details of the analysis. The obtained chi-square of 3.653 with 4 degrees of freedom was much below the required critical value to be signficant. The Cramer's V of .576 showed a moderate degree of association between the two variables. However, when the phi correlation was computed between the mother's education level and the low/high copers (by dichotomizing mother's education into high school graduation and below, and that above high school graduation), the obtained phi of 0.038 indicated that there was no systematic relationship between the two variables.

In view of this contradiction between Cramer's V value and the phi, a close examination of the data was made. This examination revealed some degree of association between college education and high coping, but no such consistency was observed at other levels of

Table 4.20 Results of the Chi-square Analysis of Mother's Education Level with Low and High Copers on the Coping with Disability Inventory for the American Sample.

	Count Row Pct Col Pct Tot Pct	CDI Scores Low Coping 1	 High Coping 2	Row Total
Mother's Education Level				
Elementary		0	1	1
		0	100.0	9.1
		0	14.3	
		0	9.1	
1-3 High School		1	1	2
		50.0	50.0	18.2
		25.0	14.3	
		9.1	9.1	
High School Gr.		2	3	5
		40.0	60.0	45.5
		50.0	42.9	
		18.2	27.3	
1-3 Vocational		1	0	1
		100.0	0	9.1
		25.0	0	
		9.1	0	
1-3 Years College		0	2	2
		0	100.0	
		0	28.6	
		0	18.2	
	Column Total	4	7	11
		36.4	63.6	100.0

Raw Chi-square = 3.653 with 4 degrees of freedom. Significance = .454
Cramer's V = .576

education. In view of the above outcomes, the hypothesis of a systematic relationship between mother's education and low/high coping scores was rejected for the American sample.

Low and high copers in the Indian sample had only 3 levels for mother's education, namely: not educated; elementary education; and 1-3 years in high school. A 2 x 3 contingency table was constructed to compute the chi-square and Cramer's V. Table 4.21 presents the details of the statistical analysis.

A chi-square value of 1.545 with 2 degrees of freedom did not reach the acceptable level of significance. The Cramer's V value of .420 showed only a moderate degree of association between level of mother's education and low and high coping. Since all the observed scores in the analysis were below the high school graduation level, the variable could not be dichotomized with high school graduation as the point of verification. When the variables were dichotomized for mothers having no education and the mothers having education, a phi correlation of .385 was obtained. This result showed a moderate degree of correlation between no education and low coping, and elementary and high school level education with high coping. Since the correlations were weak, they did not support the hypothesis of a systematic relationship between mother's education and low/high coping scores. Therefore, the hypothesis of a systematic relationship between the two variables had to be rejected for the Indian sample.

In case of the father's education, the observed scores for low and high copers in the American sample fell into the following 6

Table 4.21 Results of the Chi-square Analysis of Mother's Education with Low and High Copers on the Coping with Disability Inventory for the Sample from India

	Count Row Pct Col Pct Tot Pct	CDI Scores Low Coping 1	 High Coping 2	Row Total
Mother's Educational Level				
Not educated		2	1	3
		66.7	33.3	27.3
		50.0	14.3	
		18.2	8.1	
Elementary		2	5	7
		28.6	71.4	63.6
		50.0	71.4	
		18.2	45.5	
1-3 High School		0	1	1
		0	100.0	9.1
		0	14.3	
		0	9.1	
	Column	4	7	11
	Total	36.4	63.6	100.0

Raw chi-square = 1.545 with 2 degrees of freedom. Significance = .378
Cramer's V = .420

categories: elementary; 1-3 years in high school; high school completed; 1-3 years in vocational training; 1-3 years in college; and 4 or more years in college. A 2 x 6 chi-square analysis was performed. Table 4.22 presents the details of the chi-square analysis and the Cramer's V.

The obtained chi-square value of 5.958 was much below the required value. The Cramer's V of .735 indicated a high level of association between father's education and low and high coping scores. In order to confirm the direction of this association, the variable was dichotomized into two levels - those having high school graduation or below that level, and those having more than high school graduation. The phi coefficient was computed to be .448. The coefficient indicated a moderate level of correlation between high coping scores and father's with an education level of high school graduation or below. Similarly, there was a positive correlation between low coping and father's with an education that went beyond high school graduation. Thus while the chi-square analysis did not support the hypothesis of a systematic relationship between the two variables, the phi showed a moderate level of positive relationship when the father's education is dichotomized. However, the direction of this relationship was contrary to the expected positive relationship between post high school level education and high coping.

For the Indian sample, the observed scores of father's education for the low copers and high copers fell into 4 categories. These categories were: elementary; 1-3 years in high school; high school graduate; and 4 or more years in college. A 2 x 4 contingency table was developed to compute the chi square analysis and the Cramer's V. Table 4.23 presents the details of the statistical analysis. The chi-

Table 4.22 Results of the Chi-square Analysis of Father's Education with Low and High Coping Scores on the Coping with Disability Inventory for the American Sample.

	Count	CDI Scores		Row
	Row Pct	Low Coping	High Coping	Total
	Col Pct			
	Tot Pct	1	2	
Father's Education				
Elementary		0	1	1
		0	100.0	9.1
		0	14.3	
		0	9.1	
1-3 Years High School		1	1	2
		50.0	50.0	18.2
		25.0	14.3	
		9.1	9.1	
High School Gr.		0	3	3
		0	100.0	27.3
		0	42.9	
		0	27.3	
1-3 Vocational		1	0	1
		100.0	0	9.1
		25.0	0	
		9.1	0	
1-3 Years Col.		1	2	3
		33.3	66.7	27.3
		25.0	28.6	
		9.1	18.2	
4 or More Col.		1	0	1
		100.0	0	
		25.0	0	
		9.1	0	
	Column	4	7	11
	Total	36.4	63.6	100.0

Raw chi-square = 5.958 with 5 degrees of freedom. Significance = .310
Cramer's V = .735

Table 4.23 Results of the Chi-square Analysis of Father's Education with Low and High Copers on the Coping with Disability Inventory for the Indian Sample.

	Count Row Pct Col Pct Tot Pct	CDI Scores Low Coping 1	 High Coping 2	Row Total
Father's Education				
Elementary		2	1	3
		66.7	33.3	27.3
		50.0	14.3	
		18.2	9.1	
1-3 High School		2	2	4
		50.0	50.0	36.4
		50.0	28.6	
		18.2	18.2	
High School Gr.		0	2	2
		0	100.0	18.2
		0	28.6	
		0	18.2	
4 or More Col.		0	2	2
		0	100.0	18.2
		0	28.6	
		0	18.2	
	Column	4	7	11
	Total	36.4	63.6	100.0

Raw chi-square = 3.797 with 3 degrees of freedom. Significance = .284
Cramer's V = .587

square value of 3.797 with 3 degrees of freedom was much below the significant level. The Cramer's V value of .587 indicated a moderate degree of association between father's education and low and high copers. As was done for the American sample, father's education was dichotomized at the high school graduation level for the Indian sample, in computing phi coefficient, the phi was calculated to be .122, which indicates a low level of positive relationship between father's college level education and high coping. In view of these results, the hypothesis of a systematic relationship between father's education and low and high copers was rejected.

Hypothesis XI: A high level on the Independent Living Index will positively correlate with high copers on the Coping with Disability Inventory.

The Independent Living Index was categorized into three levels for the purpose of this study, namely: least restrictive group; moderately restrictive group; and most restrictive group. In the case of the American sample, since none of the low or high coping subjects fell into the most restrictive category, the variables were dichotomized as least restrictive group and moderately restrictive group. For the American sample, therefore, the phi coefficient was utilized to test the hypothesis. On the other hand, in the case of the Indian sample the observed scores for low and high copers fell into all three of the categories stated earlier. In view of the above, for the Indian sample, a chi-square analysis was used, and the hypothesis tested the systematic relationship between the Independent Living Index and low and high coping scores and not the hypothesis of a correlation between a high level on the Independent Living Index and high coping scores.

Table 4.24 presents the details of the phi correlational analysis for the American sample. The phi coefficient was revealed to be .418, which indicated a moderate positive relationship between the two variables. The results pointed out that the least restrictive group had a positive relationship with high coping while the moderately restrictive group had a positive relationship with low coping. Thus, the hypothesis of a positive correlation between a high level on the Independent Living Index and high copers on the Coping with Disability Inventory was accepted for the American sample.

In the case of the Indian sample, as stated earlier, the hypothesis of a systematic relationship between the Independent Living Index and low/high coping scores was tested. A 2 x 3 chi-square analysis was performed to compute the chi-square value and the Cramer's V. The obtained chi-square of 7.542 with 2 degrees of freedom was significant at the 0.05 level. A Cramer's V with a value of .828 was obtained, which pointed to a signifiant degree of association between the two variables. Table 4.25 presents the details of the statistical analysis. The results show that the subjects living in a least restrictive or moderately restrictive environment were more likely to be high copers, while those living in a most restrictive enviornment were more likely to be low copers. Thus, on the basis of chi-square analysis, the hypothesis of a systematic relationship between the two variables was upheld for the Indian sample.

Table 4.24 Phi Correlational Analysis of the Relationship Between the Independent Living Index Scores and Low/high Coping Scores for the American Sample.

	Count	CDI Scores		Row
	Row Pct	Low Coping	High Coping	Total
	Col Pct			
	Tot Pct	1	2	
Independent Living Index				
Least Rest. Group		3	7	10
		30.0	70.0	80.9
		75.0	100.0	
		27.3	63.6	
Mod Rest. Group		1	0	1
		100.0	0	9.1
		25.0	0	
		9.1	0	
	Column	4	7	11
	Total	36.4	63.6	100.0

Phi = .418

Table 4.25 Results of Chi-square Analysis of Independent Living Index Categories with Low and High Coping Scores on the Coping with Disability Inventory for the Indian Sample.

	Count Row Pct Col Pct Tot Pct	CDI Scores Low Coping 1	 High Coping 2	Row Total
Independent Living Index				
Least Rest. Group		0	3	3
		0	100.0	27.3
		0	42.9	
		0	27.3	
Mod. Rest. Group		1	4	5
		20.0	80.0	45.5
		25.0	57.1	
		9.1	36.4	
Most Rest. Group		3	0	3
		100.0	0	27.3
		75.1	0	
		27.3	0	
	Column	4	7	11
	Total	36.4	63.6	100.0

Raw chi-square = 7.542 with 2 degrees of freedom. Significance = .023
Cramer's V = .828

<u>Hypothesis XII</u>: A high level on the Productivity Index will positively correlate with high copers on the Coping with Disability Inventory.

For the purpose of this study, the Productivity Index had 3 categories. These were: most productive group, moderately productive group, and least productive group. However, in both the American and Indian samples, none of the low and high copers fell into the least productive group. Since the observed scores fell into only two categories for the Productivity Index, the phi coefficient was utilized for testing the hypothesis for both samples.

The details of the statistical analysis for computing the phi coefficient for the American sample are given in Table 4.26. The obtained phi coefficient was .623, which points to a significant level

Table 4.26 Phi Correlational Analysis of the Relationship Between the Productivity Index Scores and Low/high Coping Scores on the Coping with Disability Inventory for the American Sample.

	Count Row Pct Col Pct Tot Pct	CDI Scores		Row Total
		Low Coping 1	High Coping 2	
Productivity Index				
Most Prod. Group		2	7	9
		22.2	77.8	81.8
		50.0	100.0	
		18.2	63.6	
Mod. Prod. Group		2	0	2
		100.0	0	18.2
		50.0	0	
		18.2	0	
	Column	4	7	11
	Total	36.4	63.6	100.0

Phi = .623

of correlation between the two variables. The result supported the hypothesis of a positive relationship between the most productive group and high coping ability for the American sample.

Table 4.27 presents the details of the statistical analysis for the Indian sample. The phi coefficient was computed to be .448. The result indicated a moderate degree of positive relationship between most productivity and high coping and moderate productivity and low coping. Considering the moderate degree of relationship, the hypothesis of a positive relationship between a high level on the Productivity Index with high coping scores was rejected for the Indian sample.

Hypothesis XIII: A high level on the Health Index will positively correlate with high copers on the Coping with Disability Inventory.

For the purpose of the present study, the Health Index was categorized into 4 levels, which were as follows: good health; fair health; poor health; and very poor health. In the case of the American sample, observed health scores for the low/high copers fell into the first two levels, i.e., good health and fair health. Therefore, it was possible to utilize the phi coefficient for testing the hypothesis for the American sample. In the case of the Indian sample, however, all the observed Health Index scores (and consequently the observed scores for low/high copers) belonged only to the first category, i.e., the good health category. Under the circumstances, the hypothesis could

Table 4.27 Phi Correlational Analysis of the Relationship Between the Productivity Index Scores and Low/high Coping Scores on the Coping with Disability Inventory for the Indian Sample.

	Count Row Pct Col Pct Tot Pct	CDI Scores Low Coping 1	 High Coping 2	Row Total
Productivity Index				
Most Prod. Group		1	5	6
		16.7	83.3	54.5
		25.0	71.4	
		9.1	45.5	
Mod. Prod. Group		3	2	5
		60.0	40.0	45.5
		75.0	28.6	
		27.3	18.2	
	Column	4	7	11
	Total	36.4	63.6	100.0

Phi = .448

not be statistically tested for the Indian sample.

The details of the statistical analysis done in obtaining the phi coefficient for the American sample are presented in Table 4.28. The phi coefficient was revealed to be .385, which points to a moderate degree of positive relationship between the two variables. In view of the results, the hypothesis of a positive relationship between a high level on the Health Index scores and high coping scores on the Coping with Disability Inventory could not be accepted for the American sample.

Table 4.28 Phi Correlational Analysis of The Relationship Between the Health Index Scores and Low/high Coping Scores on the Coping with Disability Inventory for the American Sample.

	Count	CDI Scores		Row
	Row Pct	Low Coping	High Coping	Total
	Col Pct			
	Tot Pct	1	2	
Health Index				
Good Health		2	6	8
		25.0	75.0	72.7
		50.0	85.7	
		18.2	54.5	
Fair Health		2	1	3
		66.7	33.3	27.3
		50.0	14.3	
		18.2	9.1	
	Column	4	7	11
	Total	36.4	63.6	100.0

Phi = .385

Table 4.29 presents statistics for the Indian sample with respect to low and high coping subjects who belonged to the good health category. As stated earlier, the statistical hypothesis was not tested for the Indian sample.

Table 4.29 Statistical Table for Low and High Copers on the Coping with Disability Inventory who Belonged to the Good Health Category for the Indian Sample.

	Count Row Pct Col Pct Tot Pct	CDI Scores Low Coping 1	 High Coping 2	Row Total
Health Index				
Good Health		4 36.4 100.0 36.4	7 63.6 100.0 63.6	11 100.0
	Column Total	4 36.4	7 63.6	11 100.0

Summary of Findings

The major purpose of this study was to establish the reliability and validity of the Coping with Disability Inventory on a representative sample from the United States and to pilot test it on an Indian sample. In addition to the above primary objective, this research had secondary objectives aimed at studying relationships between coping behavior as measured by the total score on the Coping with Disability Inventory and other demographic and independent variables. In accordance with these objectives, data was generated to test two hypotheses related to reliability, one hypothesis related to validity, and ten subsidiary hypotheses. All thirteen hypotheses were tested on the American sample. In the case of the Indian sample, however, only two hypotheses pertaining to reliability of the research instrument and ten subsidiary hypotheses were tested. For the Indian sample, instead of testing the validity of the instrument, only a validity check was conducted. The results of the statistical analysis are summarized in Table 4.30 for a ready reference.

The hypothesis that the instrument was internally consistent was supported with a reliability of .883 for the American sample and .750 for the Indian sample. The second hypothesis on reliability tested the two subscales of the Coping with Disability Inventory. The outcome subscale was estimated to have a reliability of .825 for the American sample and .714 for the Indian sample. The process subscale had a reliability of .779 for the American sample and .406 for the Indian sample. The item-total correlational analysis indicated that there were 13 items that negatively correlated with the total score for the American sample. In the Indian sample, 16 items negatively correlated with the total score.

The third hypothesis was concerned with the validity of the Coping with Disability Inventory. The validity of the instrument was estimated by correlating the observed scores on the Coping with Disability Inventory with those obtained on Haan's California Psychological Inventory-based Ego (coping) scales (CPI scales). The overall validity of the instrument, as well as its subscales, was supported by the statistical analysis.

All the subsequent hypotheses from hypothesis 4 to hypothesis 13, were concerned with the relationship between low and high coping scores on the Coping with Disability Inventory and other demographic and independent variables. It can be seen from the summary table that in the American sample, hypotheses 4, 11, and 12 were accepted. Hypotheses 5, 6, 7, 8, 9, 10 and 13 were rejected in the American sample.

In the Indian sample, hypotheses 7, 9, and 11 were accepted. Hypotheses 4, 5, 6, 8, 10 and 12 were rejected. Hypothesis 13, concerning the relationship between the Health Index and high coping scores, could not be statistically tested, as all the observed scores fell in one category, that of good health.

A discussion of the meaning and significance of these findings is presented in the next chapter, chapter five.

Table 4.30 Summary Table of Results of Statistical Analyses of Hypotheses 1-13 for the American and the Indian Samples.

Hyp. No.	Hypotheses Tested	Statistical Procedures	Significance Level		Hyp. Accepted/ Rejected	
			American Sample	Indian Sample	American Sample	Indian Sample
H1	Internal consistency of the total items of the CDI scale.	Coefficient Alpha	Significant	Significant	Accepted	Accepted
H2	Internal consistency of the outcome subscale and the process subscale of CDI.	Coefficient Alpha	Significant	Significant	Accepted	Accepted
H3A	Correlation of the CDI scores with Haan's CDI Coping Scores.	Pearson 'r' Multiple R	Significant Significant	--- ---	Accepted	---
H4	No relationship of sex of subjects with low/high coping (CDI) scores.	Phi	Not Significant	Mod pos rel	Accepted	Rejected
H5	No correlation between the age of onset of disability with low/high coping (CDI) scores.	Phi	Low pos rel	Mod pos rel	Rejected	Rejected
H6	Systematic relationship between stability of disability rating and high coping (CDI) scores.	x2 Cramer's V	Not Significant No Sig assn	Not Significant Mod assn	Rejected	Rejected
H7	Systematic relationship between level of education and low/ high coping (CDI) scores.	x2 Phi	Not Significant Low pos rel	Not Significant Sig pos rel	Rejected	Accepted

Table 4.30 Continued

Hyp. No.	Hypotheses Tested	Statistical Procedures	Significance Level		Hyp. Accepted/Rejected	
			American Sample	Indian Sample	American Sample	Indian Sample
H8	Positive correlation of mainstreamed education with high coping (CDI) scores.	Phi	Low pos rel	Low pos rel	Rejected	Rejected
H9	Systematic relationship between level of personal income.	x2	Not Significant	Significant	Rejected	Accepted
		Cramer's V	Low Assn.	High Assn.		
H10	Systematic relationship between level of mother's or father's education and low and high coping (CDI) scores.					
	-Mother's education	x2	Not Significant	Not Significant	Rejected	Rejected
		Cramer's V	Mod assn	Mod assn		
		Phi	No syst rel	Mod pos rel		
	-Father's education	x2	Not Significant	Not Significant	Rejected	Rejected
		Cramer's V	Sig assn	Mod assn		
		Phi	Mod pos rel	Low pos rel		
H11	Positive correlation of high level on the Independent Living Index with high coping (CDI) scores.	Phi	Mod pos rel	---	Accepted	Accepted
		x2	---	Significant		
		Cramer's V	---	Sign. assn.		
H12	Positive correlation of high level on the Productivity Index with high coping (CDI) scores.	Phi	Sig pos rel	Mod pos rel	Accepted	Rejected
H13	Positive correlation of high level on the Health Index with high coping (CDI) scores.	Phi	Mod pos rel	---	Rejected	Not tested

Chapter V

DISCUSSION AND CONCLUSION

The present study was undertaken to establish the reliability and validity indices for the Coping with Disability Inventory (CDI) as a tool for evaluating coping behavior in physicially disabled persons. The CDI instrument was patterned after a coping model developed by the coping study group of the University Center for International Rehabilitation (UCIR) at Michigan State University. In essence, the UCIR coping model was based on three psychosocial concepts - coping, competence and quality-of-life - within the larger concept of adaptation to disability. The present attempt at developing and standardizing an instrument for measuring coping behavior in disabled persons had two objectives - a limited objective of validating the research instrument and an overall objective of validating the coping model for application in working with physically disabled individuals in various settings. With respect to these objectives, an effort will be made in this concluding chapter to discuss the findings and relate these findings to the coping model.

The results of the reliability and validity study of the CDI instrument with the samples from the United States and India will be discussed first. The implications of these findings for the clinical use of the CDI will also be discussed. As stated in Chapter III, a secondary purpose of this study was to research the relationship between the low and high coping behavior of disabled persons as measured by the CDI and certain demographic variables, such as sex, age of onset of disability, education, income, productivity, and health status. Findings pertaining to these relationships will be discussed in relation to samples from America and India, and their implication for the coping model will be considered. The recommendations that arise out of this research will be presented under a seperate section.

The Reliability and the Validity of the CDI Instrument

Reliability of the CDI Instrument:

In this study, the reliability of the CDI instrument was measured by obtaining internal consistency estimates. Cronbach's alpha coefficient was utilized for determining the internal consistency of the test. In addition, item-total correlations were computed to test the internal consistency (homogeneity) of the test items.

A total scale alpha of .883 was obtained for the American sample, which indicated a high degree of internal consistency. The outcome subscale had an alpha of .825 and the process subscale had an alpha of .779. These scale alphas indicate that in the case of the American sample, the CDI instrument had a reasonable level of consistency and that all the items in the inventory were measuring the same construct, in this case the 'coping' construct.

In the case of the Indian sample, the overall alpha for the CDI was .750. Alpha for the outcome subscale was .714 and for the process subscale .406. For reliability, an alpha level of .750 is considered acceptable. The outcome subscale alpha, though below the desired level, could be accepted with some reservations. The process subscale alpha of .406, however, was much below the level of acceptance. The above results indicated that, for the Indian sample, though the majority of the items in the CDI were showing reasonable consistency and measuring the coping construct, there were some items in the scale that were not contributing to the reliability of the scale. There were ten such items in the process subscale.

A level of consistency of .883, obtained on the American sample, was adequate for a self-report measure of a psychosocial construct such as coping (Mehrens and Lehmann, 1975). In addition, in spite of the cultural differences involved, the CDI instrument obtained an acceptable level of overall consistency on the Indian sample. One possible explanation of the level of consistency is that the item pool for the CDI was developed on the basis of some well- accepted theories of coping. White's (1960, 1963, and 1974) notion of coping as a human adaptational strategy and his concept of competence have a universal applicability. Haan's model combining coping, defending, and fragmenting has been well researched and scientifically supported (Haan, 1977). Wright (1960, 1980), Kerr (1977), Vash (1981) and Weisman (1979) have based their theoretical formulations of adjustment process in disabled persons on in-depth research. The UCIR coping model synthesized the above theories with the empirical findings of relevant literature reviews on the adjustment process in disabled individuals. It further pilot tested the model on a small sample of physically disabled persons. The CDI item pool, generated on the basis of such a well-grounded theoretical model, would have a consistent and reasonably predictable response.

Another possible explanation for the high level of consistency is the fact that, heterogeneous samples were obtained in the case of both the American and the Indian samples. According to Mehrens and Lehmann (1975), other things being equal, the more heterogeneous the group, the higher the reliability. In other words, as the observed score variance increases, and assuming that error variance remains relatively constant, the reliability coefficient will rise (Bolton, 1976). The above factor seems to have contributed to the high reliability of the CDI scale.

A third possible explanation is that the homogeniety of test items contributed to the high level of internal consistency of the CDI scale. Mehrens and Lehmann (1975) state that unidiminsionality, that is, making sure that all the items measure the same thing, contributes to the homogeneity of the items in the test. The Likert method of scale construction, used here helps assure unidimensionality and often leads to higher reliability.

Reliability to a large extent reflects the adequacy of the items in a test. The adequacy of an item is determined by correlating each item with the total score. According to Ebel (1979), items with item-total correlation of .30 could be considered adequate: Ebel suggests rewriting of items having item-total correlations of .20 to .29. However, Mehrens and Lehmann (1975) recommended that even very poor items (items having item-total correlation less than .20) should not be discarded, but should be rewritten. Item-total correlation, if negative should be considered as not contributing to the reliability of the test. Such items should be eliminated as not useful.

Item-total correlations were computed for the CDI items to determine the contribution of each item to the internal consistency of the the test. From the item-total correlation statistics presented in Table 4.3 in Chapter IV, it can be seen that for the American sample, there were 6 outcome items and 7 process items that were negatively correlated with the total score. In the case of the Indian sample, there were 6 outcome items and 10 process items that negatively correlated with the total score. These negatively correlated items need to be eliminated from the test. A high number of negatively correlated items in the process subscale (10 items out of a total of 37 items) for the Indian sample explained the low reliability of the process subscale. It needs to be noted, however, that item analysis data are influenced by the nature of the group being tested. An item found difficult by a specific group may not be difficult for another group. Therefore, prior to eliminating these negatively correlated items, each item needs to be closely reexamined to see whether the item could be written in simpler understandable language.

A closer examination of these negatively correlated items revealed that there were 7 items that were common to both the American and the Indian sample. These items seemed not to discriminate well between copers and noncopers across the American and the Indian samples. An outcome subscale item like Item 27, "I pay close attention to my body," may be interpreted by a spinal cord injured person as making close inspection of his or her body to prevent a decubitic ulcer. A woman may interpret the item to mean paying attention to make herself attractive. A person from India may interpret it to mean emphasis on cleanliness and personal hygiene. They would all answer it as 'almost always.' Yet, this item is included in the scale as a negative item, which means an answer of 'almost always' would be considered as noncoping behavior and get one point. Because of this ambiguity, this item would be considered inadequate for both the American and the Indian sample. The same seems true of the remaining 6 items. All 7 of these items need to be eliminated from the instrument or rewritten.

Thus, the statistical test of internal consistency and the item-total correlation indicated that, as far as the American sample was concerned, the CDI instrument had an acceptable level of reliability and that it could be used as a reliable instrument for measuring coping behavior in disabled persons, even in its present form. The reliability of the instrument could be further improved by eliminating negatively correlated items or rewriting them. In the case of the Indian sample, however, the reliability of the CDI instrument, had to be accepted with a certain amount of reservation. The 17 negatively correlated items need to be examined closely, and a decision made to either eliminate them or rewrite them. These items need to be examined in the context of their applicability to the Indian culture. It is advisable to take a close look at the homogeniety of items on both the outcome and the process subscales. At the end of this procedure, the CDI instrument should be retested for its reliability on another Indian sample.

Validity of the CDI Instrument:

The validity of any test refers to the extent to which it measures what it purports to measure (Anastasi, 1968). It was reasonable to ask whether the Coping with Disability Inventory measured the coping behavior of disabled persons. It was logical to further ask how well the inventory measured coping behavior.

Prior to the present study, the CDI instrument had already undergone a systematic examination of its content to see whether it covered a representative sample of coping behaviors of disabled persons. As the content validity of the research instrument had already been established, the present study mainly focused on establishing the criterion-related validity through empirical verification. Since the intent of the CDI is not to predict future outcome but to classify disabled indivdiuals as copers and noncopers or high and low copers, concurrent validity was considered the most appropriate form of validity for this study.

The concurrent validity of the CDI was established only for the American sample. The Pearson product moment correlation coefficient and the multiple regression coefficient were used in validating the instrument. A correlation coefficient of .531 ($p \leq .001$) between the CDI total scores and Haan's CPI-based total coping scores was obtained. The correlation indicated substantial relationship between the research instrument and the criterion. This relationship could be stated in terms of a coefficient of determination by squaring the correlation, which in this case would be .281. This means that 28.1 percent of the variation in the CPI-based total coping scores could be accounted for (predicted) from knowledge of the CDI total score. In addition, the multiple regression coefficient of .646 (significant at .001 level) was obtained with the CDI total scores as the criterion variable and all three of Haan's CPI-based coping scales in the equation. A regression coefficient as high as .646 indicated a high degree of validity for the CDI total scores. It also indicated that the combination of Haan's three coping scores accounted for 41.8 percent of the variance in the CDI total scores. These results indicated that the CDI does measure the coping behavior of disabled persons to a statistically acceptable level.

A further proof of validity for a research tool can be obtained through the criterion of internal consistency (Anastasi, 1968). The criterion of internal consistency involves the correlation of subtest scores with total score. The Pearson correlation between the outcome subscale scores and the total CDI scores was .936. The correlation between the process subscale scores and the total CDI score was .896. These correlations were evidence of a high level of internal consistency for the entire instrument. According to Anastasi (1968), such internal consistency correlations of subtests are essentially measures of homogeneity. Because it helps to characterize the behavior domain or trait sampled by the test, the homogeneity of a test has some relevance to its validity. Nevertheless, for the purpose of validation, the internal consistency data needed to be supported by empirical data external to the test itself, such as concurrent validity.

Pearson correlations and multiple regression coefficients for the two subscales of the CDI showed similar relationships with Haan's three coping scales. The outcome subscale scores of the CDI had a correlation of .436 ($p \leqslant .001$) with Haan's CPI-based total coping score. Mutiple regression analysis of the relationship between these two scores yielded a multiple R of .609 (significant at the .001 level). The process subscale had a correlation of .555 ($p \leqslant .001$) with Haan's total coping scores. Multiple regression analysis for the relationship between the two scores yielded a multiple R of .603 (significant at the .001 level). These coefficients further indicated an acceptable degree of validity for the CDI instrument.

A further proof of the validity of the CDI instrument was obtained through correlational analysis of the relationships between the outcome and the process subscales of the CDI and Haan's expressive coping and controlled coping scales. Correlational analysis scores presented in Table 4.4 of Chapter IV indicated a stronger relationship between the outcome subscales and the controlled coping scale, with $r = .409$ at the .01 significance level. A stronger relationship was seen between the process subscale and the expressive coping scale, with $r = .411$ at the .01 signficance level.

These relationships supported the theoretical construct underlying the CDI instrument. According to the coping model developed by the UCIR group, competence and quality of life are achieved states. These are behavioral outcomes of an evolving coping process over a period of time. Competence develops in an individual as a result of a series of successful adaptive encounters with his or her social environment. The outcome subscale of the CDI represents the above aspects of coping in a disabled person. The UCIR coping model also viewed coping as an ongoing evolving process within an individual which never ends. The process subscale items of the CDI represent behaviors indicative of these ongoing coping processes.

Haan (1977) viewed coping as an ongoing evolution of ego processes across time. She described competence as an achieved ego state established by repetitive, clear experiences with mastery. Haan developed the controlled coping and the expressive coping scales by factor analyzing her total coping scale. Controlled coping had high loadings on substitution, suppression, and concentration, and expressive coping had high loadings on regression in the service of ego, empathy, and tolerance of ambiguity. Controlled coping indicated an ability to concertrate on the task at hand, socially acceptable behavior, and controlling of inappropriate impulses (Haan, 1963, 1965). These behaviors were also reflected in the outcome subscale of the CDI. Similarly, expressive coping signified situationally adaptive and responsive behavior, a capacity for qualified judgments and relationships that take the feelings of others into account. Expressive coping behaviors are reflected in the process subscale of the CDI. Thus, the theoretical concepts of the coping model were substantially supported by the statistical results of the CDI validational study.

It is evident from the above discussion, that the validity of the CDI instrument, for the American part of the study, has been substantially established. One possible explanation for this level of validity is the high level of reliability of the CDI instrument (r = .88) and Haans Coping Scales (r = .81). Mehrens and Lehmann (1975, p. 120) stated that the higher the reliability of the test (predictor) and the criterion, the higher the validity coefficient.

Another factor that affected the validity was the nature of the sample with respect to both the test and the criterion measure. According to Anastasi (1968), other things being equal, the more heterogeneous the group the higher the validity coefficient. The American sample, obtained for the study, had high heterogeneity. Haan obtained her subjects from the longitudinal Oakland growth study. This sample also was heterogeneous in nature. In contrast to the above two factors that might have contributed to higher validity of the CDI, there was one factor - the factor of voluntary self-selection of the subjects - that might have lowered the validity of the research instrument. According to Anastasi (1968), the preselected sample will lower the validity coefficient. As the sample for the present study consisted of volunteer disabled individuals, it implied a degree of preselection. This factor might have actually reduced the validity coefficient of the CDI instrument.

Relationships Between the Coping with Disability Inventory Scores and Other Demographic and Independent Variables

In addition to establishing the reliability and validity of the CDI, the intent of this study was to answer research questions pertaining to relationships between the coping construct and demographic and independent variables, such as sex, age of onset of disability, personal income, and productivity. Ten hypotheses were developed and tested to research these relationships. Results of the statistical analyses were presented in Chapter IV. The relationships between these variables and the coping construct are briefly discussed below within the context of the results of the statistical analysis pertaining to both the American and the Indian samples.

Sex

Hypothesis IV concerned the relationship between the sex of the subjects and the low and high copers as indicated by the CDI scores. According to Vash (1981), the most obvious personal variable affecting reaction to disablement is the individual's sex. Vash felt that males and females react differently to disability. Passivity and dependency on the part of a disabled woman is condoned by society. The situation is the opposite for a man. However, a disabled woman has to struggle with the societal demand to be beautiful and physically perfect in face and figure. On the other hand, the theoretical model of coping holds that as coping is a universal phenomenon, the sex of the subject should not in any way influence the coping process in a disabled person (Haan, 1977). Therefore, it was hypothesized that the sex of the subject would have no relationship with low or high coping.

The hypothesis was upheld for the American sample but surprisingly, was rejected in the Indian sample. For the Indian sample, the phi coefficient was .571. While sex was not a factor in the American sample, in the Indian sample female disabled persons were slightly better copers than male disabled persons. There was a fairly large ratio of high coping female subjects in the sample compared to males. Thus, the result was perhaps the function of the obtained sample. Of the 9 female subjects in the Indian sample, none was a poor coper. The result maybe also attributed to the fact that dependency on the part of the female is condoned in the Indian culture.

Age at the Onset of Disability

Hypothesis V explored the relationship between the age of onset of disability and the low and high copers. The coping model on which this research is based holds that the coping process has an inherent developmental aspect. Taking a life-span developmental perspective, the model postulates that the quality of the coping process in a disabled persons would not be affected whether he or she acquired the disability at the time of birth or later in life (Anthony, 1975; Haan, 1977, Rutter, 1979; Bloom, 1982; and Garmezy, 1981). It is accepted, however, that depending upon the presence of factors that impede or facilitate an adaptive process, at times the individual may be coping, defending, or even fragmenting (Haan, 1977; Blom, 1980). The literature is not clear on this issue, as most of the notions have been based on the study of acquired disability. DeJong (1981) stated that those acquiring disability in later life tend to achieve independence earlier. Under the circumstances, the hypothesis stated that congenital and acquired disability would not significantly correlate with low and high coping scores.

The hypothesis was rejected for both the American and the Indian samples. For the American sample, acquired disability correlated with high coping scores. For the Indian sample, however, congenital disability correlated with high coping scores. The correlations, however, were not strong ones. These diametrically opposite results seem to have arisen as a result of small sample size in the equations (11 each for the American and the Indian samples). Or they may be due to cultural factors, such as emphasis on independence in living in America and the emotionally supportive family system that encourages secure ties in India. Bhatt (1962) also reported for India a higher degree of adjustment in those who were disabled in childhood compared to those who became disabled in adulthood. Since the correlationships were not sufficiently strong, one could still argue that the hypothesis was upheld. On the other hand, one could speculate that, had the sample size been larger, the correlations could have been stronger. Since, no clear-cut trends emerged in the analysis, the issue remained unresolved. This particular aspect of coping needs to be further researched within the cultural contexts.

Stability of Disability and Health

The next hypothesis (H6) tested the systematic relationship between a high level of stability of disability and high coping scores. This hypothesis was developed because of literature reviews that suggested that stability of disability leads to better adjustment. According to Vash (1981), people with progressive disabilities are dealing with more than residual disablement; they confront an active disease process plus whatever residual disablement follows in its wake. In degenerative conditions like multiple sclerosis, the individual has to deal with a less predictable and potentially more unnerving end. H6 and H13 which dealt with the relationship between disability and nondisability related health and low and high coping scores, more or less covered the same aspects. Both the stability of disability rating and the health index were based on a self-report of the subjects. Therefore, findings pertaining to both the hypotheses can be discussed here.

For the American sample, the result did not demonstrate any significant relationship between high level of stability of disability and high coping scores. However, a moderate degree of positive correlation was indicated between good health and a high level of coping. These findings showed that a stable disability and good health do not necessarily lead to better coping in disabled persons of American origin. In the case of the Indian sample, a moderate degree of association was indicated between a high level of stability of disability and high coping. No correlation could be computed between good health and a high level of coping, as the total sample came from a single group, that of good health. Frequency statistics indicated that high copers accounted for 21.2 percent of the total sample as compared to 12.1 percent for the low copers. The data from the Indian sample indicated that even though the majority (81.8 percent) belonged to highly stable group, the lower stability group had some copers among them. Similarly in the American sample, high copers were fairly evenly distributed in the upper three stability levels. Although no-clear cut trends emerged, there were some indicators that while good health may positively influence the coping process, high stability may not have such an impact. The results probably would have been more definitive if the number of subjects in the sample had been large.

Hypotheses H7 to H12 dealt with the relationship of socioeconomic and cultural factors to the coping process. H7, H9 and H12 dealt with level of education, personal income, and productivity, respectively. Because they are interrelated, they will be discussed together. Hypotheses H8, H10, and H11 were concerned with mainstreamed education, mother's and father's education, and independent living, respectively. Since these hypotheses do not have areas of common concern, they will each be discussed seperately.

Education, Productivity, and Income

Education, employment, and income are three different entities, but they are closely linked in building a secure and satisfying life. In the present study, the concept of productivity was based on an evaluation of a person's overall contribution to community and family life along five dimensions: 1) gainful employment, 2) household activities, 3) school or educational programs, 4) formal organizations, and 5) leisure time activities. In the present job-oriented society, educational level is linked to the type of employment one has. In turn, occupational level is linked to income. Income level considerably influences a person's participation in formal organizations and leisure time activities. According to Cameron et al., (1973) in their study of life satisfaction, income level was the only significant variable related to life frustrations; a higher income level was associated with judging one's life as less difficult. DeJong (1981) stated that education in his study was positively linked with productivity and that those with advanced education found it easier to gain employment. A disabled person who is employed is better adjusted to his or her disability than one who is unemployed. Thus, education, employment, and income level are together linked to competence, quality of life, and coping ability. This is also substantiated by the coping model (Blom, 1982). Therefore, it was hypothesized that the educational level (H7), income level (H9), and productivity level (H12) would all have a systematic relationship with low and high coping scores.

The hypotheses regarding educational level and income level were rejected for the American but accepted for the Indian sample. The hypothesis pertaining to productivity was accepted for the American sample; but, because of a moderate level of correlations, was rejected for the Indian sample. At first glance, one would be surprised that a high level of education and income did not correlate with high coping scores for the American sample. In this connection, one has to bear in mind that qualified disabled Americans receive substantial welfare assistance which helps them maintain adequate living standards. The income from these welfare benefits is not linked to educational level but to the severity of disability. One could speculate that the above factors are reflected in the results. Given these factors, one may wonder about a significant level of correlation between high level of productivity and high coping. Since productivity was defined to include participation in education, household activities, organizational participation and leisure time activities, along with employment, the result is not surprising. Indeed, the results reflected the present shift in the American rehabilitation approach from full-level employment to an emphasis on quality-of-life.

The results for the Indian sample went along the anticipated line except for the hypothesis regarding productivity. They indicated that a person with a college education and a middle-level income, at least, will be a better coper with his or her disability. It was interesting to note that in a country where the illiteracy level is around 80 percent of the population, the present sample contained 78.2 percent subjects with an educational level of high school graduation or above. The low correlation for productivity was a reflection of the fact that there was high level of educated unemployment in India, and lacking adequate support systems, disabled persons have few opportunities for participating in leisure time activities.

Mainstreamed Education

Hypothesis H8 dealt with the relationship between mainstreamed educational experience and coping scores. Schools are agents in the socialization of the child, and particularly so in the case of the disabled child. In the United States, at the present time, the emphasis is on mainstreaming disabled children into the regular school system. In India, the trend still is to provide education to disabled children in special schools. Educators disagree as to which of the systems is the best. It is claimed that special schools provide better liaison between the environment and the needs of the disabled child, concentrated training in special skills related to the child's sepcific disability, and a sense of belonging that provides the best basis for the child to enter the complex world of adult life. On the other hand, proponents of mainstreaming argue that the normal school with mainstreaming provides real experiences for the child and that such experience would better prepare the child for life outside the school. Moreover, by seperating the child, one emphasizes his or her differences whereas integration into the regular school system minimizes these differences (Carver and Rodda, 1978). In view of the above controversy, it was felt that a study of the relationship of coping ability with the type of educational experience would be worthwhile. It was hypothesized that there would be a positive correlation between high coping scores and mainstreamed educational experience.

The findings indicated low positive correlations for both the American and the Indian sample (Phi = .239 for the American sample and Phi = .133 for the Indian sample). The results do not clearly indicate that mainstreamed education facilitates the coping process in persons who are physically disabled. These low correlations were unanticipated, as the coping model indicates that coping and development of competency would be facilitated by everyday encounters with the 'normal' social world (Kulkarni, 1982). One could speculate that the data being small, the results do not point out clear-cut trends. On the other hand, the results could be attributed to the fact that the mainstreamed education was universalized in the United States only in 1975. Therefore, it can be assumed that American subjects in this study did not receive the universalized mainstreamed education. Under the circumstances, the results of this study may not be generalized to the universalized mainstreamed education.

Mother's and Father's Education

Hypothesis H10 pertained to the relationship between the mother's and father's education and the coping scores. In most cultures, the basic unit of socialization is the family. The family exerts a paramount power on the growth of the person. Where a member of the family becomes disabled, the customary family balance is disturbed. Family members, particularly parents, experience feelings of guilt, shame, anger, confusion, helplessness, and often loneliness. In the case of the child born with a disability, the quality of mothering could suffer due to emotional factors (Poznanski, 1973). The coping theory suggests that, in general, coping parents produce coping offspring (Haan, 1977).

A review of literature pertaining to the parental reaction to disability suggests that the flavor of parental response varies with the parents educational level and socioeconomic status. The educational level of the parents assumes importance when they have to be trained in handling their disabled child. It is not uncommon to see parents develop sensitivity and an unusual knowledge about the disabiling condition of their child. Specifically, as the educational level of mothers increases, their attitude toward the disabled child becomes more positive (Poznanski, 1973; Carver and Rodda, 1978). In view of the above, it was hypothesized that the mother's and father's level of education would systematically correlate with the coping scores.

The results of the x^2 analysis did not indicate any systematic relationship between the mother's education and the high copers for both the American and the Indian samples. When the variable was dichotomized at the high school graduation level for the American sample and as "not educated" for the Indian sample, only a low phi correlations were obtained. These results indicated that the mother's educational level did not significantly influence their attitude toward their disabled child.

In the case of the father's education, for the American sample, the dichotomization of the variable at the high school level yielded a moderate phi correlation between low educational level and high coping and vice versa. For the Indian sample, the findings did not indicate any systematic relationship. These findings indicated that as far as the present study is concerned, highly educated American fathers negatively influenced their disabled sons or daughters coping process. But, for the Indian sample, the father's educational level did not influence his attitude towards his disabled child. While these results were not anticipated, the rejection of the hypothesis regarding the mother's education for the American sample, and the mother's and father's education for the Indian sample could be logically related to a small number of subjects in the sample. However, the surprising correlation between low level of the father's education and the high coping scores needs to be explained. It could be conjectured that fathers with more education, because of their high socioeconomic standards, have high aspirations for their family members. When a member of the family becomes disabled they are unable to cope with the situation. The fathers noncoping behavior may be reflected in the disabled child. Poznanski (1973) partially supported the above reasoning by indicating that mourning reactions to a disabled child in the family are more evident in higher socioeconomic families and may be a culture-bound phenomenon.

Independent Living

Hypothesis H11 dealt with relationship between the Independent Living Index and coping scores. Independent living was operationally defined as the individual's ability to be in control of his or her life and to make decisions based on the choice of acceptable options. Within the coping framework this would mean managing one's own affairs, holding a job, looking after a house, raising a family, and participating in the daily life of the community. DeJong (1981) identified, for the persons with spinal cord injury, 'living arrangements' and 'productivity' as key dimensions to successful long-term independent living outcomes. Of these, productivity has been discussed earlier.

Hypothesis H11 pertaining to living arrangements is discussed here. For the American sample, it was hypothesized that a high level on the Independent Living Index would positively correlate with high coping scores. Since the obtained correlation was moderate, the hypothesis was accepted with some reservations. For the Indian sample, the hypothesis of a systematic relationship between the two variables was tested. As the obtained x^2 was significant, the hypothesis was accepted. The findings indicated the general direction a of relationship between the independent living arrangements and a high level of coping. It can be stated that the results indicated that those physically disabled persons who live in the least restrictive environments are likely to be better copers. Under the circumstances, it is safe to assume that had the sample been large, the relationship between the above two variables would have been stronger.

In concluding this discussion, it is important to note that in addition to the above statistical analysis based on a definition of low and high coping as one standard deviation below and above the mean, two additional post hoc statistical analytic procedures were carried out by varying the definition of coping. In the first post hoc procedure, the upper 27 percent of the scores on the CDI instrument were defined as high coping scores and the lower 27 percent as low coping scores. This analysis did not make any significant difference in the results as compared to results obtained from, the procedure utilized in this study. In the second post hoc procdure, the CDI scores were divided at the mean with the scores above the mean defined as high coping scores and those below the mean as low coping scores. The second post hoc procedure produced no significant results for the ten hypotheses tested, except for hypothesis H7 which yielded x^2 score of 11.980 with 4 degrees of freedom, significant at the 0.5 level for the American sample. Thus the results of the two post hoc procedures signified that definition of low and high coping on the basis of one standard deviation below and above the mean was most appropriate for this study.

Limitations of the Study

The question arises, because the American sample was obtained from the Lansing, Ann Arbor, Grand Rapids, and Plainwell, Michigan areas and was not obtained randomly, how generalizable are the findings in this study?

The sample utilized in the present study was obtained as a convenient sample. This fact was further compounded because the subjects were self-selected volunteers. These two factors limit generalizability. However, the Cornfield Tukey bridge argument states that logical inferences can be made from even nonrandomized samples to populations of similar characteristics. Following this argument, it is possible to generalize to a population of persons "like those observed" in this study (Cornfield and Tukey, 1956). The above contention is further supported by the heterogeneity of both the American and the Indian sample.

Barring the above two factors, which affect the generalizabilty, the empirical evidence obtained from the present study supports the contention that the results of this study are generalizable. Haan's three coping scales, which were used in this study as criteria for establishing validity, have a fairly high level of reliability. The reliability coefficient for Haan's total coping scale was .81, the controlled coping scale was .82, and the expressive coping scale was .73. The reliability levels of Haan's coping scales have been repeatedly confirmed by other studies. Validity coefficients of Haan's coping scales with CPI scales have ranged from .35 to .75 (Haan, 1963, 1965, 1977). Given the strong reliability and the validity of the criterion measures, support is lent to the generalizability of the results of this study to other populations of similar characteristics, in the United States.

The Indian part of the study in this research was concerned with standardizing the testing procedure and developing the CDI instrument for further application in India. Standardized testing procedures were established for the inventory. Reliability of the CDI was tested on a represertive sample from India. The reliability of the overall inventory and the outcome subscale were found to be adequate except for the process subscale, which had a reliability below the desired level. In view of the above, the CDI instrument is not ready for application in India in its present form. The process subscale of the CDI needs to be refined further and fresh efforts made to establish its reliability and validity before it is ready for use in India. In view of the inadequate reliability of the process subscale, the results of the statistical analysis done on the ten hypotheses concerning the relationship between the CDI scores and the demographic and independent variables need to be interpreted with caution. Since the Indian sample was obtained in Ahmedabad City of Gujarat state and a standardized Gujarati translation was used in the study, the results of the study can be only generalized to other populations in the Gujarat state and not to other parts of India.

In testing the hypotheses concerning the educational level and low and high coping scores, for computing the phi coefficient, the educational level was dichotimized at the high school graduation level.

Thus, for the purpose of this research, high educational level was defined as education obtained beyond the high school graduation, i.e. college level education. Low educational level was defined as high school graduation and below. This dichotomization, to a certain extent, does not reflect the reality of the situation. In India, particularly, where education at the primary level has become available to the masses only in the past decade, even 2-3 years of high school education would be considered a high level eduation. High school graduation is considered sufficient qualification for obtaining clerical positions in government services even today. Thus, for India, high school graduation could be considered high level education. Even in the United States, a majority of persons do not go beyond the education level of high school graduation. Under the circumstances, definition of high educational level as beyond the high school graduation, would be considered as a limiting factor in generalization from the present study. (Inview of the above, as a post hoc measure, with respect to hypotheses H7 and H9, phi coefficients were computed by defining high level of education as high school graduation and above. This analysis, however, did not yield any significantly different results as compared to results obtained from the procedure utilized in this study).

In testing the hypotheses concerning the relationship between the CDI scores and the demographic and the independent variables, the results were influenced by the small number of subjects in the equation. The above fact should be considered in interpreting the results of the study for research application elsewhere.

Implications for the Clinical Use of the Coping With Disability Inventory

The reliability and the validity studies of the CDI have lent enough support to the psychometric properties of the instrument to recommend its use in a clinical setting. This instrument would be helpful for measuring the coping behavior of a physically disabled person in a rehabilitation setting or in any service program that provides services to disabled persons. The CDI could be also used to identify the coping behaviors that need to be generated or maintained. It could be used by a physician, a psychologist, a counselor, a therapist or any professionally trained rehabilitation person who has an adequate background in administering and interpreting a standardized test with psychometric properties.

The CDI instrument is a highly effective tool for evaluating coping behaviors of disabled persons. It is easy to administer and less time consuming. It is self-administered. It can be administered individually or in groups. The administration of the entire CDI schedule took a maximum of one hour. The inventory by itself does not require more than twenty minutes. The procedures for its administration are simple and, as such, does not require the presence of a person of high expertise for its administration. Because of its simplicity and effectiveness, the CDI can be beneficially used in any program that provides services to disabled persons.

The scores of the CDI may be investigated to determine an individual protocol by examining the level of scores, whether they are high, medium, or low. Determination of the level of scores can be made by the norms produced in this study. However, new norms need to be developed for the population of interest to the therapist.

The scores that are in the high range (one S.D. above the mean) could be interpreted to mean that the individual has been coping well with his or her disability at the time of the evaluation and does not require any therapuetic intervention or may require only a limited intervention. The scores that are in the medium range (between one S.D. below and above the mean) would imply that the individual is coping reasonably well with his/her disability but may be experiencing some difficulty in coping with a specific psychosocial aspect of his/her disability. This individual would require intervention to help him/her deal with areas where he/she is having difficulty. The area(s) of difficulty could be determined by examining the protocol. The low range scores (scores falling lower than one S.D. below the mean) would indicate that the person is not at all coping with his/her disability and is perhaps experiencing difficulties in adaptation. Individuals having difficulties in coping with their disability may be defending and fragmenting. They would require therapuetic intervention to deal with their problem areas. These interventions can take the form of counseling, psychotherapy, development of coping skills through assertiveness training, problem solving and role playing, and remedial education. Since the CDI is a diagnostic-classificatory instrument, it can be used at a later date to evaluate whether the person is coping well with his disability. The CDI can be used to advantage in a clinical interview. It also can be used along with other psychosocial measures in evaluating a disabled person's adjustment process.

The CDI is intended for use with disabled individuals who are 18 years and older. It can be used with disabled persons who have physical (orthopedic) or sensory (visual or hearing) disabilities. It is not intended for use with persons having progressive terminal diseases, such as cancer, and mentally ill or mentally retarded persons. The CDI also is not meant to be used with physically disabled persons who are in early acute phases of treatment. It can be used in later acute phases of treatment when the disability-related conditions are reasonably stabilized, and in all phases of convalscense and rehabilitation. It can also be used with geriatric populations having physical or sensory disabilities. The CDI is a self-rating measure of the coping process. At times, persons with severe physical impairments or blind persons will require assistance in completing the inventory. The clinician administering the test may read the inventory to the person concerned and fill it in on his/her behalf. In the case of deaf persons, however, it is essential that the person administering the test should be well-versed in sign language to establish proper communication and rapport.

The clinical application of the cDI instrument has to be viewed against the background of present-day rehabilitation practices. From the psychosocial perspective, insufficient attention has been given in rehabilitation circles to study of disabled persons who cope with difficulties and display competence and life satisfactions. The CDI instrument makes the disabled person aware of his/her strengths and weaknesses so that he/she can contribute to his/her own rehabilitation process. Often there exists a strong conflict between consumers with disabilities and professional providers. the CDI instrument would assist the professionals in focusing and channeling the disabled person's anger in constructive directions and facilitate positive self-growth and change, rather than hindering them.

Recommendations for Further Research

The CDI's clinical usefulness as an assessment tool will have to be determined by clinicians who use it. Its clinical usefulness has to be supported by further research that assesses the rehabilitation success of physically disabled persons treated with therapeutic strategies based on assessment with the CDI. Keeping the above in mind, and given the results of this study, the following recommendations are made for further research with the CDI.

The CDI instrument has good reliability and satisfactory content and construct validity. Validation of a newly constructed test is an ongoing process. Further validation of the CDI requires several studies across different populations. Such studies would also facilitate cross-validation of the findings of this study.

In the present study, validation of the CDI instrument was conducted by utilizing Haan's three CPI based coping scales. The validity of the instrument could be further strengthened by utilizing other well-known standardized tests, such as the Minnesota Multiphasic Personality Inventory as the criterion. the instrument also could be validated with the California psychological Inventory.

Further research is recommended on larger samples from other parts of the United States. Such field testing of the CDI would not only enhance its reliability and validity data base, but, would also help in developing national norms for the test.

The present study was based on a nonrandomized sample, which limits its generalizability. To avoid this pitfall, future research shold be based on randomized samples, as far as is feasible.

In rehabilitation settings, one often encounters physically disabled persons with specific disabling characteristics, such as paraplegia, quadraplegia, blindness, and upper and lower extremity amputions. It may be advantageous and desirable to establish 'special group norms' for the CDI in the most commonly encountered conditions in rehabilitation settings.

Research on the clinical application of the tool would be important to establish the CDI as a valid assessment tool. Research on clinicians using the model of coping operationalized in the CDI and using the CDI to develop treatment plans versus an unstructured approach to helping rehabilitation clients to adjust to their disability not based on the coping model, would provide some information about the instrument and the coping model it is based on.

The results of the hypotheses testing pertaining to relationships between the coping process and the demographic and the independent variables that were conducted in the present study mostly did not yield clear-cut results. It was speculated that the results might have been influenced by the small number of subjects involved in the sample. As the review of the literature indicated that these variables have an influential relationship with the coping process, a further testing of these hypotheses on a larger heterogeneous sample would be desirable.

The desirability of further developing the CDI instrument for application in India was brought up earlier. Since the CDI has shown an overall acceptable level of reliability, its further development for use in India would be worthwhile. Both the outcome and process subscales should be revised and the reliability and validity of the scales established. The recommendations made above would be equally applicable to the utilization of the CDI instrument in India.

In conclusion, the CDI has shown sufficient psychometric properties to support continued research and beginning use as a clinical assessment tool by clinicians working with physically disabled persons. Further research would be desirable to determine the usefulness of the instrument to clinicians and to determine how well the CDI can function as a diagnostic-classificatory-tool.

APPENDICES

APPENDIX A

COPING WITH DISABILITY INVENTORY

Demographic Information

I. Initials _____ Sex _____ Birthdate ________ Today's Date_____

II. Name(s) and Description of Disability (ies):

____

____

____

III. List of Adaptiave Devices Used: (Such as crutches, cane, dog guide, wheelchair, hearing aid).

____

____

IV. Age of Onset/Acquirement _____ Cause if Known _________________

V. Stability of Disability Rating: (Circle number that best applies):

Stable				Unstable
1	2	3	4	5

Physical consequences of disability:

Non-progressive				Progressive
1	2	3	4	5

VI. Education Completed: (Check one)

Elementary (primary) ____

1-3 years high school ____

High school graduate ___

1-3 years college ___

1-3 years vocational ___

4 or more years college ___

Degree received (fill in)__________

VII. Educational Experiences: (Check in appropriate column(s):

	Mainstreamed (regular)	Segregated (special)
Elementary (primary) School	__________	__________
Junior High School	__________	__________

Senior High School __________ __________

VIII. Vocational Rehabilitation Experiences: (Check all the appropriate columns).

Received financial assistance _____

Eligibility assessment _____

Counseling (or other therapies) _____

Vocational Training _____

College Education (financial support)

IX. Annual Personal Income: (From all sources: wage, public assistance, family support, investments; check income level currently applicable).

U.S. Dollars 0 to 5,000 _____

or Indian Rupees, 5,000 to 10,000 _____

10,000 to 15,000 _____

15,000 to 20,000 _____

20,000 to 25,000 _____

25,000 to 30,000 _____

30,000 to 35,000 _____

Daily Living Information

X. Family Background:

1. Years of school completed by your mother (or female head of household) (Check one).

Elementary (primary) ____

1-3 years high school ____

High school graduate ___

1-3 years college ___

1-3 years vocational ___

4 or more years college ___

Degree received (fill in)__________

2. Years of school completed by your father (or male head of household) (check one).

Elementary (primary) ____

1-3 years high school ____

High school graduate ___

1-3 years college ___

1-3 years vocational ___

4 or more years college ___

Degree received (fill in)_________

3. Highest annual income range attained by your family of origin (Check one).

U.S. Dollars

or Indian Rupees,

0 to 5,000 _____

5,000 to 10,000 _____

10,000 to 15,000 _____

15,000 to 20,000 _____

20,000 to 25,000 _____

25,000 to 30,000 _____

30,000 and above _____

4. The occupation of the main wage earner in your family of origin (Whether or not employed).

____

____

____

XI. Current Living Arrangements: (Check whatever is appropriate)

1. How do you identify yourself (e.g., student, housewife, parent) _________

Are you currently living in a regular house ____

Residence hall ____ barrier free residence ____
Institutional setting ____

Are you married, divorced or separated? _______________

Do you have children? Yes ____ No ____

Do you live: a. Alone? _____ b. With family? ____

c. with a friend or non-family persons? ____

If you checked b or c, answer the following:

2. Enter first name of each person who lives with you opposite the proper category:

Spouse: ________________

Parents: ________________

Children (state age and sex) ____________________________

____

Other relatives (grandparent, brother, aunt, etc.)

____

____

Friend or unrelated person: ____________________________

3. Total number of persons in household _____

XII. Current Employment:

1. Are you currently employed? Yes ____ No ____

If yes:

2. Job title (state if a housewife): ________________________

3. Approximate hours per week that you work: ________________

XIII. Current Education or Training Program:

1. Are you currently participating in any educational or training programs? Yes ____ No ____
If yes:

2. Indicate name of program and institution: ________________

____

3. Number of hours per week spent on education or training: (include class hours, studying and tutoring) _____________

XIV. Membership in organizations:

1. Are you currently a member of any organization?
Yes ____ No ____

2. List those which are disability related and your attendance (participation) rate over the past three months:

Organization	Number of Meetings/Activities Attended	Number Held

3. List those which are non disability related and your attendance (participation) rate over the past three months:

Organization	Number of Meetings/Activities Attended	Number Held

XV. Household activities:

Are you responsible for performing household activities?
Yes ____ No ____

If yes, for each of the following household activities, give the amount of time you spend each week conducting that activity. (Indicate number of hours per week).

	For Self Only	For Benefit of Whole Household
1. meal preparation	____	____
2. housecleaning	____	____
3. food shopping	____	____
4. supervision (children or dependent adults	____	____

How much time do you spend on your personal care? ____

Do you depend on physical assistance for your personal care?
Yes____ No ____

If yes, state type of assistance ____

XVI. Leisure Activities:

For each of the following leisure activities, give the number of time that you have participated during the past month (30 days). (Indicate number of times during a month)

1. public entertainment (show, dinner, etc.) ____________
2. shopping (other than for food) ____________
3. visiting friends or relatives ____________
4. watch television ____________
5. read newspapers, magazines and books ____________
6. have friends or relatives visit ____________
7. recreational sports/activities ____________
8. others (describe)________________ ____________

XVII. Current General Health Status (physical and mental):

1. In general how has your health status been for the past 3 months? (Circle number that best applies)

1	2	3	4	5
very good	good	fair	poor	very poor

2. Do you believe that your general health status has been adversely effected by your disability?

Yes _____ No _____

	Disability Related Health	Non Disability Related Health
3. During the past 3 months how often (number of <u>times) has</u> your health status kept you from doing the kind of activities which are part of your usual day?	________	________
4. During the past 30 days how many <u>days</u> has your health kept you in bed all or most of the day?	________	________
5. During the past one year how many <u>days</u> were you a patient in a hospital?	________	________

XVIII. Comments:

DISABILITY ADJUSTMENT QUESTIONNAIRE

XIX. Rate each of the following statements in one of the columns on the right side of the page that best describes your preference or leanings. Answer according to your present situation (current feelings).

		Never/ Rarely 1	Seldom 2	Sometimes 3	Often/ Frequent 4	Almost Always 5
001	I obtain information about my body in relation to my disability.	( )	( )	( )	( )	( )
002	I am involved in social, political and/or non-work activities.	( )	( )	( )	( )	( )
003	I am aware of my personal needs and concerns.	( )	( )	( )	( )	( )
004	As a result of my disability, I tend to view life as having both meaning and purpose.	( )	( )	( )	( )	( )
005	I think about my disability	( )	( )	( )	( )	( )
006	I find different things to do during my free time.	( )	( )	( )	( )	( )
007	I am able to express my anger.	( )	( )	( )	( )	( )
008	I obtain information about my body in relation to my disability.	( )	( )	( )	( )	( )
009	I can tolerate anger directed towards me.	( )	( )	( )	( )	( )
010	I feel like a victim of fate or misfortune because of my disability.	( )	( )	( )	( )	( )
011	I have close love relationships.	( )	( )	( )	( )	( )
012	I experience emotional stress.	( )	( )	( )	( )	( )

		Never/ Rarely 1	Seldom 2	Some- times 3	Often/ Frequent 4	Almost Always 5
013	I hold on to my opinions even though others may not agree.	( )	( )	( )	( )	( )
014	I consider my disability an inconvenience.	( )	( )	( )	( )	( )
015	I feel that I have to be on my guard in interaction with others	( )	( )	( )	( )	( )
016	I help and encourage others.	( )	( )	( )	( )	( )
017	I use fantasy and imagination to develop options and opportunities in my life.	( )	( )	( )	( )	( )
018	I am optimistic and hopeful about my life.	( )	( )	( )	( )	( )
019	I participate in social organizations.	( )	( )	( )	( )	( )
020	I am involved in removing disability barriers and prejudice.	( )	( )	( )	( )	( )
021	I enjoy life.	( )	( )	( )	( )	( )
022	I am able to handle frustrating experiences.	( )	( )	( )	( )	( )
023	I am able to obtain material comforts.	( )	( )	( )	( )	( )
024	I have a positive opinion of myself.	( )	( )	( )	( )	( )
025	I accept that my body looks and functions differently from others.	( )	( )	( )	( )	( )
026	I desire relationships that include intimacy and trust.	( )	( )	( )	( )	( )
027	I pay close attention to my body.	( )	( )	( )	( )	( )

		Never/ Rarely 1	Seldom 2	Some-times 3	Often/ Frequent 4	Almost Always 5
028	I cannot stand ambiguity or uncertainity.	( )	( )	( )	( )	( )
029	I can point to real achievements in my life.	( )	( )	( )	( )	( )
030	I think of my disabilities as the worst thing that has happended to me.	( )	( )	( )	( )	( )
031	I see myself as no longer disabled in my day dreams.	( )	( )	( )	( )	( )
032	I think that my disability has advantages.	( )	( )	( )	( )	( )
033	I feel comfortable with looking at myself in the mirror.	( )	( )	( )	( )	( )
034	I care for the people and things in my life.	( )	( )	( )	( )	( )
035	I am aware of the difference between loving someone and needing someone's love.	( )	( )	( )	( )	( )
036	I am comfortable when others do not accept my beliefs.	( )	( )	( )	( )	( )
037	I am satisfied with myself even though I may be unemployed.	( )	( )	( )	( )	( )
038	I live in the "here and now" rather than in the past.	( )	( )	( )	( )	( )
039	I can accept compliments and recognition from other people.	( )	( )	( )	( )	( )
040	I think my life is challenging and exciting.	( )	( )	( )	( )	( )
041	I perceive problems as opportunities for growth.	( )	( )	( )	( )	( )
042	I am responsible for making other people happy.	( )	( )	( )	( )	( )

		Never/ Rarely 1	Seldom 2	Sometimes 3	Often/ Frequent 4	Almost Always 5
043	I like myself and can accept my "failings".	( )	( )	( )	( )	( )
P-01	I seek and obtain specific information to solve problems.	( )	( )	( )	( )	( )
P-02	I base my decisions on my future goals.	( )	( )	( )	( )	( )
P-03	I feel comfortable about asking others for support and assistance.	( )	( )	( )	( )	( )
P-04	I have problems in communicating with others.	( )	( )	( )	( )	( )
P-05	I am willing to take calculated risks.	( )	( )	( )	( )	( )
P-06	I initiate interactions with others.	( )	( )	( )	( )	( )
P-07	I see opportunities in my life as limited.	( )	( )	( )	( )	( )
P-08	I use professional assistance when needed.	( )	( )	( )	( )	( )
P-09	I reflect before and after my actions.	( )	( )	( )	( )	( )
P-10	I make efforts to overcome and solve my problems.	( )	( )	( )	( )	( )
P-11	I am positively influenced by persons apart from my family.	( )	( )	( )	( )	( )
P-12	I can laugh at myself and with others about life happenings that are connected with my disability.	( )	( )	( )	( )	( )
P-13	I am cautious in my behavior.	( )	( )	( )	( )	( )
P-14	I seek advice from other disabled persons.	( )	( )	( )	( )	( )
P-15	I find myself complying to the expectations of others.	( )	( )	( )	( )	( )

	Never/ Rarely 1	Seldom 2	Some- times 3	Often/ Frequent 4	Almost Always 5
P-16 I back away from difficult situations.	( )	( )	( )	( )	( )
P-17 I like receiving compliments and recognition from other people.	( )	( )	( )	( )	( )
P-18 I understand the nonverbal messages of others towards me.	( )	( )	( )	( )	( )
P-19 I examine alternative solutions to problems.	( )	( )	( )	( )	( )
P-20 I feel helpless in dealing with my disability.	( )	( )	( )	( )	( )
P-21 I use self-control in expressing my feelings.	( )	( )	( )	( )	( )
P-22 I attribute my disability to fate.	( )	( )	( )	( )	( )
P-23 I display my emotional reactions to stressful situtations.	( )	( )	( )	( )	( )
P-24 I try to influence the direction of events toward personally determined goals.	( )	( )	( )	( )	( )
P-25 I mentally rehearse responses to events that will or might happen.	( )	( )	( )	( )	( )
P-26 I consider myself to be the source of control over events in my life.	( )	( )	( )	( )	( )
P-27 I experiment with different ways of dealing with disability-related problems.	( )	( )	( )	( )	( )
P-28 I evaluate my behavior by my own internal standards.	( )	( )	( )	( )	( )
P-29 I try to focus on other areas of my life that are more rewarding when I am troubled by my life.	( )	( )	( )	( )	( )

	Never/ Rarely 1	Seldom 2	Some-times 3	Often/ Frequent 4	Almost Always 5
P-30 I experience sadness.	( )	( )	( )	( )	( )
P-31 I experience fear.	( )	( )	( )	( )	( )
P-32 I am alert to changes in my body that may affect my health.	( )	( )	( )	( )	( )
P-33 I give myself presents, treats or nurture myself in other ways.	( )	( )	( )	( )	( )
P-34 I take responsibility for a problem rather than blaming myself or it.	( )	( )	( )	( )	( )
P-35 I experience grief in relation to my disability.	( )	( )	( )	( )	( )
P-36 I look forward to the future as an opportunity for further growth.	( )	( )	( )	( )	( )
P-37 I perceive problems as opportunities for growth.	( )	( )	( )	( )	( )

APPENDIX B

Interview Schedule for Stress/Coping As Adult Handicapper

Education and Training

1. What formal education/vocational experiences have you had?
   a. What about past experiences?

   b. What about current experiences?

   c. What have you liked/not liked about them?

      (1) In general?

      (2) Specifically?

   e. Did they prepare you for work?

   f. What accommodations were made?

2. What have you taught yourself?

3. What are your future plans?

Home and Other Activities

4. What are your responsibilities at home?

5. What are your interests, hobbies, activities and exercise?

6. How do home life and community involvement/work effect each other?

7. What is the most pleasant outside activity?

8. How do you spend evenings and weekends?

Community Involvement/Work

9. What is the nature of your current activities?

   a. What were your reasons for choosing it?

   b. What are your responsibilities?

   c. How do you evaluate your performance?

10. What are your perspectives about your current activities?

  - a. Are there opportunities?
  - b. Is there another activity you would like better?
  - c. What things do you like about it?
  - d. What things don't you like about it?
  - e. Are environmental modifications needed, desirable, or not?
  - f. Do you plan to continue/not continue?

11. What have your seeking employment experiences been like?

12. What are/have been your positive experiences with people in your activities?

13. What are/have been your negative experiences with people in your activities?

14. What have been your experiences with activities in the past?

Mobility and Accessibility

15. How do you get to and from community activities/work?

    - a. Does it present challenges?
    - b. What accommodations were made?

16. How do you get around at your activities?

17. Where and under what circumstances do you usually have lunch?

18. What forms and means of transportation do you use in general?

19. To what extent have you/do you travel?

Housing

20. What are your living arrangements?

    - a. Are they satisfactory?
    - b. What about its design and structure?
    - c. How did you come about this arrangement?
    - d. Are finances a consideration?

21. Did/do you experience difficulties with housing?

22. How do you deal with public services related to home living?

Personal Needs

23. Do you/have you received disability benefits?

    - a. Are they a disincentive to work/training/education/community involvement?
    - b. What changes would you recommend if any?

24. What are your experiences with benefit systems?
    - a. Health care?
    - b. Social security?
    - c. Obtaining insurance?
    - d. Counseling?

25. How do you manage daily routines?
    - a. Shopping?
    - b. Laundry?
    - c. Personal care?
    - d. Cooking?

Self System

26. What are your personal aspirations toward work, marriage, etc.?

27. What kinds of anxieties and discouragements do you have?
    - a. Which bother you the most?
    - b. How do you deal with them?

28. What would you most ideal world be?

29. Do you estimate your energy level as low, high or medium?

30. To what degree do you consider yourself
    - a. Socially assertive?
    - b. Physically asseritve?

31. Describe the details of your typical day.
    - a. Are you satisfied with that?
    - b. What is a better day like?
    - c. What is a worse day like?

32. In what ways do you compare yourself to others?
    - a. In what ways do you not?

33. What are your ideals for yourself as a person?

34. If you could answer to any question, what are some of the questions you might ask?

35. How do you solve problems such as the following:
    - a. How do you decide who to vote for?
    - b. When you have a choice of products, how do you decide

   which to buy?
   c. When the plumbing goes out, what do you do?
   d. If a friend or relative had a high fever what would you do?

36. What makes you angry?

    a. How do you deal with anger?

37. How do you view yourself?

    a. In the past?
    b. In the present?
    c. In the future?

38. What is your mood like?

39. What nicknames have you been called?

40. What have your teasing experiences been like?

41. What do you like best about yourself?

42. What do you like least about yourself?

43. What are your inner private thoughts and imaginations with regards to:

    a. Movies you see?
    b. T.V. you watch?
    c. What persons you admire?
    d. Who were your childhood heroes?

44. Do you consider yourself handicapped or having disabilities?

    a. What terms do you use?
    b. How do you want other to view/treat you or your characteristics?
    c. How do you view similar characteristics in others?
    d. How do you view characteristics different than you in others?

45. How have your experiences as a handicapper influenced your body awareness?

    a. How would you describe the sense of your body (body consciousness)?

        (1) Does it vary?
        (2) Has it changed over time?
        (3) How do you view your adaptive equipment in relation to body/self?

b. How do you view your body functions?

    (1) Non-disabled parts?
    (2) Disabled parts?

c. What experiences have influenced the views of your body?

    (1) In childhood?
    (2) In adult life?

d. Is your body self and social self the same or different?

e. How does your body awareness affect sexual expressions?

f. Describe such things as:

    (1) Personal space with others?
    (2) Physical contact/distance with others?
    (3) Experiences in physical/social contacts with others?

46. What kinds of role expectation (as a student, worker, child, adult, parent relative, male, female) have you received from others as a handicapper?

    a. Non-handicappers?
    b. Handicappers?
        (1) With similar constraints?
        (2) With different constraints?

    c. Parents?
    d. Teachers?
    e. Bosses?
    f. Other adults?

47. How have you responded to these role expectaions?

48. What experiences have you had with discrimination and prejudices?

    a. In different life contexts?

        (1) School?
        (2) Neighborhood?
        (3) Home?
        (4) Relatives?
        (5) Dating?
        (6) New social contacts?
        (7) Others?

    b. How have you responded to them personally?
    c. Have you been involved in group action?

Relationship System

49. Who are the current people you live with?
    - a. Family of birth?
    - b. Your own family?
    - c. Others?
    - d. What activities do you do together?

50. How satisfactory is/are your relationship with the opposite sex?
    - a. Dating?
    - b. Love life?

51. How would you characterize your relationships to your family of origin?
    - a. In the past?
    - b. In the present?
    - c. In the future?
    - d. How did they respond to your characteristics?
    - e. Were there significant relationships to relatives?

52. Do you belong to any clubs and organizations?
    - a. Are any of these handicapper related?

53. Do you interact with your neighbors?

54. Who are your significant other social relationships?

55. How would you describe your relationships to others and theirs towards you?
    - a. Handicappers?
    - b. Non-handicappers?
    - c. What attitudes exist/existed about:
        - (1) Dating, marriage, etc.?
        - (2) Having children, rearing children, etc.?

Current and Past History

56. What have been significant positive events in your life?

57. What have been significant negative events in your life?

58. Could you describe any particular turning points in your life?

59. Who (or what situation) has influenced you the most?

Summary

60. What would you like to tell us we have not asked about?

61. What helpful advice would you give other handicappers?

    a. Non-handicappers?

62. What have been your personal reaction to this interview?

Appendix C

A group of us at the University Center for International Rehabilitation (UCIR) of Michigan State University are interested in knowing more about how a physically disabled person copes with his disability. Through such understanding we hope to be able to help handicappers facilitate more effective and satisfying lives.

If you are willing to participate in the study, will you kindly sign the enclosed form and return it to us. Enclosed also find a Disability Inventory questionnaire which we request you to fill in and return along with the form. The content of the filled-in questionnaire would remain confidential and only be used for teaching and research purposes without personal identification and disclosures. If you so desire, you can withdraw from the study any time you wish. The return of duely filled in questionnaire by you signifies informed consent. Should you wish a report of our findings, it will be sent to you on your request.

If you have any questions, please feel free to contact Dr. Gaston Blom or the undersigned at 355-1824 who are responsible for these studies.

Sincerely,

M.R. Kulkarni

Enclosures

Appendix D

Consent Form

"The purpose, objectives, and methods of this study have been explained to me. My questions have been fully and satisfactorily answered. I freely consent to participate with the freedom to discontinue at any time without recrimination.

I agree to participate in the study and fill in the questionnaire. I agree/do not agree to participate in the interviews. All results and materials will be treated with strict confidence. My name and references to other persons and places will remain anonymous. Materials generated from the interviews by the investigators about myself will be made available on request. The results of the study will also be available to me.

I understand that the nature of the interview is to obtain information on coping with disability. Treatment is not involved."

Date   Signature

I hereby concent to participation of my son/daughter in the above study.

Date   Parent/Guardian

Appendix E

Form Letter of Introduction for the Study in India: Use of Questionnaire

Through this letter, I seek your cooperation in a research project I am undertaking to study, "how a physically disabled person copes with his disability." This study is undertaken to meet the requirements of a Ph.D. degree in Rehabilitation Counseling, which I am currently pursuing at Michigan State University, East Lansing, Michigan, USA.

A group of us at the University Center for International Rehabilitation of Michigan State University, under the guidance of Dr. Gaston E. Blom, Professor of Psychiatry, have been studying the coping process in the handicapped persons over these last three years. Our hope is that by gaining a better understanding of the coping process in disabled persons we may be able to help disabled persons lead more effective and satisfying lives. In furtherance of this view, I felt it would be worthwhile to study aspects of the coping process in disabled persons in India, especially, because hardly any study is available in India that deals with psychosocial aspects of disability.

I am enclosing herewith a questionnaire that deals with disability and aspects of coping process. I request you to complete the same and return it to me by __________. The content of the filled-in questionnaire will remain confidential and will be only used for research and teaching without personal identification and disclosure. If you so desire, you can withdraw from the study any time you wish. The return of duely filled in questionnaire by you signifies informed consent.

If you have any questions, please feel free to contact me at phone number 1856-57-58 or write to me, c/o B. M. Institute of Mental Health, Ashram Road, Ahmedabad, 380009.

Sincerely,

M. R. Kulkarni

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