Perceived Social Support and Physical Rehabilitation from Stroke: 
A Review of the Literature

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LOYOLA UNIVERSITY CHICAGO

PERCEIVED SOCIAL SUPPORT AND PHYSICAL REHABILITATION
FROM STROKE: A REVIEW OF THE LITERATURE

A THESIS SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL
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MASTER OF ARTS

DEPARTMENT OF COUNSELING PSYCHOLOGY

BY

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1. Social Support Instruments
CHAPTER I
INTRODUCTION

In the United States, an estimated 600,000 to 750,000 people are victims of stroke each year (Schulz, Tompkins, & Rau, 1988). Approximately 70% of the victims of stroke survive beyond the critical first month, often left with physical and communicative disabilities (Schulz et al., 1988). Epidemiologists, social workers, gerontologists, psychologists, and all those interested in health and well-being generally agree that an individual's available social support is an important determinant of well-being (Cohen & Syme, 1985; Cohen & Wills, 1985; Baron, Cutrona, Russell, Hicklin, & Lubaroff, 1990; Rintala, Young, Hart, Clearman, & Fuhrer, 1992).

Dobkin (1991) described stroke rehabilitation as "the multidisciplinary effort by physicians, therapists, and basic and applied medical and psychosocial science researchers to optimize the physical, cognitive, behavioral, social, and vocational potential of people who are disabled by their neurologic impairments" (p. 507). The incidence of stroke impacts many lives; therefore, the integration of social support research and stroke research in the prediction of and increase in physical rehabilitation
warrants investigation.

In the mid-1970s, pioneers of social support research theorized about its role in moderating or buffering the negative impact of stressful life experiences (Cassel, 1974, 1976; Caplan, 1974; Cobb, 1976). In an exhaustive review of the literature, Cohen and Wills (1985) provided evidence in support of the health-protective function of social support. In addition, the authors (Cohen & Wills, 1985) reported studies which suggested the direct-effect of social support on well-being in the absence of negative life events or stress.

Several researchers consider social support to be a multidimensional concept which has led to confusion in social support measurement (House, 1981; Kaplan, Cassel, & Gore, 1977; Thoits, 1982). House (1981) contends that social support "is a flow of emotional concern, instrumental aid, information, and/or appraisal...between two people" (p. 26). The social support literature is replete with studies measuring specific dimensions of social support, namely, the amount, the type, and the sources of support (Thoits, 1982). The quality and quantity of enacted or perceived social support are considered factors in determining health and well-being. Social support researchers typically express interest in understanding how social relationships promote adaptation to stressful life events (Cobb, 1976; House, 1981; Kahn & Antonucci, 1980). Moreover, social support
researchers are particularly interested in the type of aid provided by family and friends. Thoits (1985) stated that social support "most commonly refers to helpful functions performed for an individual by significant others" (p. 55).

In their influential article, Cohen and Wills (1985) reported that the majority of studies conducted within the past two decades examined the general effect or the health-protective effect of social support, social networks, or social integration on physical and psychological health outcomes. For the purpose of this paper, the general effect and the health-protective effect of perceived social support will be considered in terms of physical rehabilitation after stroke. The literature review confirms the importance of perceived social support measurement in predicting and influencing rehabilitation outcome.

Social Support and Health

Understanding the factors that elicit change in social relationships is a crucial element in untangling the causal link between social relationships and health (Schulz & Rau, 1985; Schulz & Tompkins, 1990). Research suggests that people who have experienced disruption of social relations or interpersonal relationships (e.g., job change, residential move, and death of loved one) have a higher rate of disease (Cohen & Syme, 1985). Baron et al. (1990) conducted a study which lends support to Cohen and Syme's (1985) theory suggesting the existence of a relationship
between social support and physical health. The investigation (Baron et al., 1990), involving the spouses of cancer patients, is thoroughly described in Chapter II.

Research indicates that the impact of death or illness, such as stroke or spinal cord injury, may alter a social network in the following ways: eliminate an important member or confidant from the social network, reduce social contact with network members due to decreased mobility, and/or alienate network members through behavioral changes (Schulz & Tompkins, 1990; Schulz et al., 1988). Significant changes in a person's life, such as spinal cord injury, can have residual effects resulting in physical limitations or communicative disabilities, making the maintenance of social relationships difficult (Schulz & Tompkins, 1990). An investigation (Wagner, Williams, & Long, 1990) designed to examine the social networks of victims of closed-head-injuries strengthens and supports the findings reported by Schulz and Tompkins (1990), describing the complications of relationship maintenance after a debilitating injury.

Spinal cord injury and stroke may result in the loss of employment, decreasing the access an individual has to resources available for maintaining reciprocal relationships. This decrease in resource availability results in the depletion of the individual's social network. Further, Cohen and Syme (1985) hypothesized that an individual's perception of his or her social support network
may affect the reporting of illness or injury related symptoms. Cohen and Syme (1985) suggested that individuals are likely to consider the perceived consequences of their symptom reporting, therefore gauging the resulting reinforcement or punishment from their support network members. For instance, an individual receiving emotional support from family members only when displaying physical discomfort may continue to exhibit the symptomatic behavior after the symptoms diminish in order to receive the emotional support he or she craves.

House (1981) examined occupational stress, social support, and health in his well-known and frequently-cited text, Work Stress and Social Support. House referred to the evidence available suggesting stress may contribute to the development of a wide range of physical and mental disorders including: gastrointestinal disorders, infectious diseases, depression, and cancer (Cassel, 1976). House recommended that intervention in the stress process contributing to various disorders is the preventive tactic for enhancing physical and mental well-being.

In 1985, Cohen & Wills estimated that 90% of published social support studies tested the effects of social support in broad community samples without regard to the type of stress experienced. Also, the measurements used in the studies were limited to the severity or number of events. As social support research has matured, instrument
development and measurement sensitivity have evolved. Moreover, the specific population targeted for analysis can be identified. For the purpose of this review, the identified population is survivors of cerebrovascular accidents (i.e., stroke survivors) and the rehabilitation goal is recovery of functional status. Colantonio, Kasl, Ostfeld, and Berkman (1993) depicted stroke as "the major cause of adult disability in the United States" (p. S261). Frequent reference to the recovery of functional status or the recovery of activities of daily living (ADLs) prior to illness or injury will be made throughout the review.

The strategy used to organize the literature search is outlined in Chapter IV. Chapter II describes the theoretical foundations of social support research. Several diverse conceptualizations of social support are presented in Chapter III, providing a general view of the complex construct. In addition, Chapter III addresses the issue of social support measurement. A review of empirical studies investigating perceived social support in relation to functional status recovery of stroke survivors is presented in Chapter IV. The lack of empirical inquiry designed to synthesize the vast amount of research in the areas of social support and stroke rehabilitation exposes a profound gap in scientific research.

Literature examining the impact of perceived social support in physical rehabilitation is meaningful to stroke
survivors, caregivers, family members, and health care providers. The purpose of the literature review is two-fold: (1) acknowledge the lack of research in the area of social support in relation to functional status recovery of stroke survivors and (2) recognize the potential (i.e., lowering health care costs, reducing poststroke institutionalization, and increasing stroke survivor independence) of evaluating perceived social support prior to discharge from hospital or acute care facility. In light of shorter hospital stays encouraged by the diagnosis-related groups (DRGs) program of Medicare reimbursement (Dobkin, 1991), stroke survivors and their caregivers need practical information leading to the increased likelihood of functional status recovery. Development of appropriate and time-sensitive poststroke interventions is needed to improve the stroke survivor’s functional status over time.

The review of the research explores the relationship between perceived social support and physical rehabilitation after stroke. It is hypothesized that social support is only as effective as the extent to which it is perceived. Therefore, the primary objective of the review of the research in Chapter IV is to confirm the powerful impact of perceived availability of social support on poststroke physical rehabilitation.
CHAPTER II
BIOSOCIAL RESPONSE

Theoretical Foundations

The seminal works by Cassel (1974, 1976), Caplan (1974), and Cobb (1976) greatly influenced the direction and extent of social support research. The theoretical foundations of social support were established in the mid-1970s and collectively stimulated two decades of research investigating the proposed relationship between social support and health. Cassel, Caplan, and Cobb theorized that a relationship existed between negative life experiences and psychological distress and that social support played a protective or buffering role during times of stress through a reinforcement of adaptive coping behavior.

The individual contributions of Cassel (1974, 1976), Caplan (1974), and Cobb (1976) are presented, respectively, to trace the earliest exploration of social support theory and research. Most notably, the authors proposed that social factors influenced the duration and course of many disorders and that a protective function operated through interpersonal relationships during times of stress. The chapter concludes with an examination of the influential
article by Cohen and Wills (1985), reviewing the social support research extending beyond the years covered by previous researchers (Cassel, 1976; Caplan, 1974; Cobb, 1976). Cohen and Wills provided evidence for the health-protective function of social support as well as the overall, direct-effect of social support on health and well-being.

Cassel (1974, 1976) introduced the importance of psychosocial factors in the etiology of disease. In particular, Cassel emphasized the role that social support played in stress-related disorders. Cassel's animal research demonstrated the effect of social disorganization on reducing resistance to disease. Moreover, he suggested that the dissolution of social ties resulting from stressful environmental conditions could lead to inadequate feedback or reaction from the individual's environment. Cassel argued that inadequate feedback from the individual's environment could leave the individual highly susceptible to disease. The researcher speculated about the probability of a connection existing between social factors and biological responses.

Cassel (1974, 1976) postulated that individuals who do not know what others expect of them, do not realize how they are being evaluated, and do not know how to anticipate the reactions of others are likely to experience personal insecurity and insignificance. In this case, the
individual's nervous system and hormonal mechanisms remain in a constant stimulated crisis state. Subsequently, the individual's physical responses to a constant crisis state includes the depletion of physiological resources and the increase in susceptibility to disease. The basic tenet of Cassel's theory is that social support is provided by those people who are close or important to the individual and that social support serves a protective function buffering the individual from psychological or somatic consequences of social disorganization.

An investigation that supports Cassel's (1974, 1976) hypothesis is Baron et al.'s (1990) study involving the spouses of cancer patients. The purpose of the investigation (Baron et al., 1990) was to determine the existence of a relationship between social support and immune system functioning. Baron and his colleagues measured perceived social support with the Social Provisions Scale (SPS; Cutrona & Russell, 1987), designed to analyze the six components of social support proposed by Weiss (1974). The six components of social support measured by the SPS include both instrumental support (i.e., reliable alliance and guidance) and emotional support (i.e., reassurance of worth, attachment, social integration, and opportunity to provide nurturance). The participants in the study were exposed to substantial stress; the participants' spouses were afflicted with and in treatment for urologic
cancer. The results of the study were based on the contribution of each of the six components of social support to blood-based measures of immune function. The researchers statistically controlled for depression and used a covariance analysis to study the independent disposition of social support to immunity. In addition, the researchers addressed, discussed, and directly tested the extent to which negative life events impact social support and immune functioning.

Baron and his colleagues (1990) observed the immune system’s reaction to assorted agents. Specifically, the investigators measured how rapidly the participant’s T-lymphocyte (T-cell) population reproduces in response to a presented mitogen. The two mitogens used in the experiment, each known to trigger the proliferating response of the T-cells, were phytohemagglutinin (PHA) and concanavalin A (Con-A). Baron et al. reported that the proliferation of the T-cells in response to various mitogens is hypothesized to resemble the body’s reaction when presented with an infection (Kiecolt-Glaser, Glaser, Williger, Stout, Messick, Sheppard, Ricker, Romisher, Briner, Bonnell, & Donnerberg, 1985).

The study (Baron et al., 1990) revealed a positive relationship between perceived availability of social support and immune functioning under stress. The results indicated that subjects with higher perceived availability
of social support had a larger amount of target tumor cells being destroyed and faster reproduction of T-cells when presented with the mitogen PHA than did subjects with lower perceived availability of social support. The researchers concluded that high levels of perceived social support contributed to stronger immunity when the individuals were experiencing severe stress and chronic life strain. Baron et al.'s findings support Cassel's (1974, 1976) theory of the health-protective effect of social support (viz., perceived social support), specifically occurring when an individual manages a chronic stressful condition.

Cassel (1974, 1976) suggested that health-protective factors fit into biological and social categories. The capacity of living organisms to adequately adjust to various physiological and psychological circumstances is the biological category. The group supports available to the individual when he or she experiences a stressful situation is the social category. Social support is thought to be a biosocial response which occurs when an individual is confronted with stress. Specifically, an individual will experience a biosocial response when a negative physiological or psychological event occurs and his or her social support system mobilizes to moderate the negative impact of the physiological or psychological event on the individual. The activation of an individual's social support system when confronted with stress is the biosocial
response. Caplan (1974) concurs with Cassel's view that social support is a health-protective, biosocial response activated by the presence of a stressor.

Caplan's (1974) interests resided in the areas of community mental health and preventive psychiatry, emphasizing the significant role that others play in an individual's support system. In particular, Caplan underscored the role of the support system in the course and outcome of an individual's transitions, crises, and everyday demands. Turner (1983) stated that Caplan conceptualized support systems in terms of "attachments among individuals or between individuals and groups that serve to improve adaptive competence in dealing with short-term challenges, stresses, and privations" (p. 109). Caplan integrated Cassel's (1974, 1976) idea of social feedback into his own work on support systems. Caplan considered the health-promoting function of social support at the community level, expanding the support system to include people outside the family. Emphasizing the importance of activating supportive services within the individual's community (e.g., mutual-aid groups, informal neighborhood-based services, friends, and community caregivers) is a major tenet of Caplan's theory. Moreover, Caplan was influential in generating awareness about the effective mobilization and delivery of informal and formal support services in the community.

Incorporating a view consistent with that of Cassel
(1974, 1976) and Caplan (1974), Cobb (1976) expressed interest in the function of social support in relation to stress and well-being. Cobb considered social support to be a stress-buffer. Essentially, Cobb's work strengthened and supported Cassel's and Caplan's mutual view that social support is a biosocial response occurring when an individual experiences stress. Further, Cobb asserted that information operated as a vehicle in the fulfillment of social needs and protection from the consequences of stressors. Most notably, Cobb professed the divisibility of the social support construct into three types: emotional support, esteem support, and belonging support. The proposed stress-buffering function of social support was theorized to protected people in crisis. The researcher theorized that the biosocial response occurred during times of crisis and it assisted in the coping and adaptation processes following an individual's resulting psychological or physical disorder. Information regarding the beneficial effects of being cared for, esteemed, and involved is highlighted in Cobb's work.

Individually, Cassel (1974, 1976), Caplan (1974), and Cobb (1976) authored influential reviews of the literature concerning the environmental moderators of stress. Based on their research, the authors proposed that individuals undergoing stress are cushioned from harmful psychological and physiological consequences when they are the recipients
of social supports (Gottlieb, 1983). Cassel's and Caplan's conclusions about the buffering effects of social support were a result of animal and human studies involving exposure to stressful situations. The studies (Cassel, 1976; Caplan, 1974) revealed differences in physical consequences depending on whether the stressful situation was experienced in the presence of others or experienced in isolation. Specifically, the results concluded that the subjects who were isolated from peers and did not engage in supportive interactions experienced adverse health consequences. Cassel's study of the social environment and its importance to the nature of social support strengthened Caplan's conclusions concerning primary group ties and types of support systems in the natural environment. Caplan, however, investigated and advanced the health-protective functions of the support systems in the individual's natural environment.

Clearly, the collective theoretical and empirical contributions of Cassel (1974, 1976), Caplan (1974), and Cobb (1976) were considerable. The theoretical foundations of social support research were set forth by their singular efforts in the mid-1970s. Understanding the health-protective function of social support proposed by the pioneers of social support has guided and inspired two decades of research. However, a review of the social support literature (Cohen & Wills, 1985) raised poignant
questions as to the exclusive function of social support as a moderator or buffer of stress. Cohen and Wills considered the likelihood of social support having a general effect on individual health and well-being even in the absence of stress.

**Main-effect Model & Stress-buffering Model**

Cohen and Wills (1985) published a seminal review of the social support literature on the relationship of social support to well-being. Cohen & Wills (1985) ascertained which proposed model, the main-effect model or the stress-buffering model, was instrumental in the positive association consistently found between social support and well-being. The studies analyzed in the comprehensive review were limited to those incorporating informal support systems (i.e., family, friends, and co-workers) and were arranged according to the type of support measure used in the investigation.

Cohen and Wills (1985) concluded that evidence existed for both the main-effect model and the stress-buffering model of social support. The research reviewed suggested that the positive correlation between social support and well-being could be explained by either the main-effect model or the buffering hypothesis. However, Cohen and Wills contended that both models occurred through distinct and different processes. The utility and sensitivity of the two proposed models are differentiated by the type of support
being measured.

The main-effect model posits that social support beneficially impacts an individual's overall well-being, irrespective of the presence of a stressor. In other words, it is not necessary that there be a stressor in order for social support to enhance well-being. The individual's sense of self-worth, security and stability within the community, and socially recognized and rewarded role in the community often contributes to the overall well-being of the individual.

Cohen and Wills (1985) addressed the protective or cushioning effect of the stress-buffering model. This model contends that social support functions indirectly, moderating the negative impact of negative life experiences. The stress-buffering model posits that an individual needs to experience a stressful situation in order for social support to contribute to well-being. The mobilization of the protective function of social support occurs only when an individual encounters a stressful situation, thereby intervening in the individual's appraisal of the stressor.

The stress-buffering model states that social support may allow the individual to perceive his or her coping mechanisms to be adequate in stress management, may perceive his or her support system to be available if support is needed, and may lessen his or her reaction to the stressor. The stress-buffering model affirms that the relationship
between stress and distress is greater under conditions of low support than under conditions of high support. In fact, only minimal differences in the stress-distress relationship are found between the high support group and the low support group under low levels of stress. Under high levels of stress, however, the individuals with low support demonstrate a much higher level of distress than do the individuals with high support. Therefore, the stress-buffering model of social support claims that the level of support the individual perceives is available determines the level of distress the individual experiences. The stress-buffering model can be used by clinicians to determine and predict the impact of stressful situations on individuals with varying levels of social support. The stress-buffering model is a potentially valuable tool in guiding useful therapeutic interventions and implementing effective therapeutic strategies.

As predicted by Cassel (1974, 1976), Caplan (1974), and Cobb (1976), the conclusions by Cohen and Wills (1985) provided evidence for the buffering role that social support plays when an individual experiences stress. However, in contrast to previous social support researchers, Cohen and Wills hypothesized that social support could be linked to health outcomes on either a main-effect basis or stress-buffering basis.

Cutrona, Russell, and Rose (1986) conducted an
investigation of elderly men and women (N = 50), which explored the impact of stress and social support on physical and mental health over a 6-month interval. The average age of the participants in the study sample was 69.4 years. The participants' social support, negative life events, and physical and mental health were assessed at the beginning and at the end of the 6-month study interval. The researchers used an assortment of measures to assess change in physical and mental health over the 6-month study interval. Perceived social support was assessed by the Social Provisions Scale (SPS; Russell & Cutrona, 1984). The SPS, developed to assess Weiss's (1974) six social provisions, is thought to tap important aspects of social support. Negative life events were measured by the Geriatric Social Readjustment Rating Scale (GSRRS; Amster & Krauss, 1974). The GSRRS measured the occurrence of various life events within the past six months. In order to assess the participants' health status, four measures of physical health were administered. The instruments used in physical assessment were the following: a symptom checklist, a functional abilities measure, a subjective health rating, and a total number of illnesses. The symptom checklist and the functional abilities measure were subscales from the Duke-UNC Health Profile (Parkerson, Gehlbach, Wagner, James, Clapp, & Muhlbaier, 1981). The study included three measures of mental health: a subset of life satisfaction
measures, the UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980), and the Zung Self-Rating Depression Scale (Zung, 1965).

Cutrona et al. (1986) conducted regression analyses in order to predict the effects of stress and social support on physical and mental health at Time 2. The results showed perceived social support as significantly related to physical health status. Higher levels of perceived availability of social support at Time 1, was predictive of better physical health status at Time 2. Regression analyses highlighted two social provisions to be predictive of physical health: reassurance of worth and opportunity for nurturance. Further, the direction of the relations between intervals indicated that subjects who were receiving the two provisions at Time 1 displayed better physical health at Time 2. The investigation supported the hypothesis that a positive relationship exists between perceived social support and physical health over time.

The results for the interaction between negative life events and perceived social support showed that perceived social support was found to be positively related to mental health in Time 2, only if the individual was experiencing high levels of negative life events. The measures of physical and mental health (i.e., dependent variables) used in the factor analysis were life satisfaction, loneliness, depression, symptom status, functional abilities, global
health rating, and number of illnesses. Individuals who were in better mental health at Time 1 reported higher levels of social support at Time 2. In fact, individuals who reported lower levels of social support also reported experiencing more negative events.

Cutrona et al.'s (1986) investigation presents evidence for both the buffering hypothesis and the main-effect model, depending on the focus of measurement. For instance, support for the buffering hypothesis is seen when measuring of the interaction between stress and social support in mental health outcome. The main-effect model is substantiated when measuring physical health status independent of stress. This finding is consistent with the Cohen & Wills (1985) review of the literature providing evidence for both models, the stress-buffering model and the main-effect model. The buffering effects of social support tend to occur with measures that focus on appraisals of availability or quality of support and the main-effects of social support tend to occur with measures that focus on affiliation and resources (Vaux, 1988). The focus of measurement represents a fundamental issue in the confirmation of either the main-effect model or stress-buffering model of social support. Clearly, the investigator interested in evaluating social support needs to determine the focus of social support measurement prior to interpreting the results of the investigation.
The empirical investigations reviewed by Cohen and Wills (1985) examined both the structural and functional aspects of social support and the mechanisms by which social support impacts both mental health and physical illness outcome. Cohen and Wills concluded that a lack of social relationships may result in negative psychological states (e.g., depression). Further, they hypothesized that a negative psychological state often manifests itself in adverse physical health or reduced physiological processes. In the end, the individual is often left vulnerable to disease or the increased risk of disease.

An individual's health crisis affects the entire family system and can result in radical changes in his life (Moos, 1985). Severe physical illness or disability, prolonged treatment and uncertainty, and intense personal stress can have a profound and lasting impact on the individual and the individual's entire family system. Curiously, some individuals employ adequate coping mechanisms, recover, and resume their prior level of functioning without the mobilization of extensive social support. However, research shows that other individuals simply do not have the resources to employ adequate coping mechanisms and suffer serious psychological consequences (Moos, 1985).
"Social support has been implicitly or explicitly central in earlier literary, religious, sociological, psychological, and medical thought; it has just had different names: love, caring, friendship, a sense of community, and social integration" (House, 1981, p. 14). Social support researchers have struggled with its conceptualization and operationalization throughout the literature (Barrera, 1986; Cohen & Wills, 1985; Sarason, Shearin, Pierce, & Sarason, 1987; Tardy, 1985; Wallston, Alagna, DeVellis, & DeVellis, 1983). Several different and distinct definitions of social support ultimately emerged (Cobb, 1976; House, 1981; Kahn & Antonucci, 1980; Kaplan, Cassel, & Gore, 1977; Turner, Frankel, & Levin, 1983).

Many researchers conceptualize social support as a multidimensional concept (House, 1981; Kaplan et al, 1977; Thoits, 1982; Wallston, et al., 1983; Wilcox & Vernberg, 1985). Wallston et al. (1983) described social support as "a complex constellation of constructs only some of whose elements are shared" (p. 369). The following discussion briefly describes various conceptualizations of social
support which are predominant in the literature.

Cobb (1976) postulated that social support is essentially the information leading an individual to believe that he or she is cared for and loved, esteemed and valued, and included in a network of communication and mutual obligation. Cobb refers to these three aspects of social support as emotional support, esteem support, and network support, respectively. The notion of being cared for and loved is furnished through fulfillment of affiliation and close and intimate relationships. Thoughts of being esteemed and valued are reflected in the needs of recognition being met and in acquisition of a heightened sense of self-worth. Membership in a social group and mastering a sense of orientation in society contributes to the individual's sense of belonging.

House (1981) conceptualized social support as an interpersonal transaction. The interpersonal transaction consists of at least one of the following: emotional concern, instrumental aid, information, or appraisal. Emotional concern is related to empathy, trust, liking, or love. Instrumental aid involves helping activities such as the provision of materials, services or skills to assist in satisfying role responsibilities. Informational support refers to advice or information which helps a person to cope with a personal or environmental problem. Appraisal refers to information useful for self-evaluation or evaluative
feedback. Unlike the affect involved in emotional support and the aid involved in instrumental support, informational and appraisal support involve only the transmission of information. House viewed support in terms of problem-related social interactions, including a wide range of people (i.e., co-workers, spouse, relatives, friends, neighbors, and caregivers) (House, 1981; Tardy, 1985; Vaux, 1988).

In a review of the social support literature, Broadhead, Kaplan, James, Wagner, Schoenbach, Grimson, Heyden, Tibblin, and Gehlbach (1983) agreed with the utility of Kahn and Antonucci's (1980) definition of social support. Kahn and Antonucci theorized that social support refers to interpersonal transactions which include at least one of the following: affect, affirmation, and aid. Affect refers to the demonstration of liking, admiration, respect, and love. Affirmation is achieved by the expression of agreement or confirmation of another's action or statement. Aid refers to the transaction of assistance (i.e., money, information, advice, things, entitlement, and time). The three broad categories embrace the interpersonal transactions included in Kahn and Antonucci's conceptualization of the social support construct.

Kaplan and his colleagues (1977) hypothesized that social support referred to the extent to which an individual's social needs are met through interaction with
others. The authors (Kaplan et al., 1977) suggested that an individual's fundamental social needs consist of affection, belonging, identity, esteem, and security. The individual's social needs may be satisfied through the provision of socioemotional aid or instrumental aid.

Distinctions can be made between the two categories of aid, socioemotional and instrumental, as outlined in Kaplan et al.'s (1977) work. Socioemotional aid includes affection, acceptance, esteem, sympathy, and understanding from others. Instrumental aid includes financial assistance, information, advice, and assistance with family or work obligations (Thoits, 1982). It is significant that this definition of social support does not require the supportive relationship to be a mutual exchange or reciprocal. In terms of Kaplan et al.'s conceptualization of social support, the social support system (i.e., those people relied on for the provision of basic social needs) is not considered a part of a reciprocal exchange process.

Turner and his colleagues (1983) described social support as a social, psychological, cognitive concept. In other words, the authors considered social support to be a personal experience. Social support is not considered in terms of objective circumstances or interactional processes. Turner and his colleagues incorporated Cobb's (1976) view of support (i.e., the dimensions of esteem, love, and network involvement), as well as Weiss's (1974) formulation of
social provisions (i.e., the degree to which an individual feels loved, respected, and involved) into their definition of social support. Five of Weiss's social provisions yield some conceptual similarity to descriptions of social support: attachment or belonging (provided by marriage or heterosexual relationships), social integration (provided by friends or co-workers to share interests and values), reassurance of worth (provided by family, friends, and co-workers who believe in the capability the individual's role), reliable alliance (provided by relationships with family), and guidance (provided by trustworthy friends and relatives) (Turner, 1983; Vaux, 1988).

Undeniably, the literature regarding social support includes several definitions, conceptualizations, and operationalizations of the complex construct. The theoretical basis for each author's definition of social support is unique, yet there seems to be an element common to all conceptualizations. Perhaps, the individual's feelings of being loved, valued, and cared for by significant others is the principal element unifying the various theoretical and conceptual perspectives of social support.

**Models of Social Support**

Sarason, Sarason, and Pierce (1990) discussed three major approaches to the study of social support: the network model, the received support model, and the perceived support
model. Together, the three models of social support offer a comprehensive theoretical understanding of the construct. The network model concentrates on the focal person's social integration and the interconnectedness of those within the focal person's group. In their research, Sarason et al. found that network measures differ relative to the generality of the questions asked, the particular group targeted, and the specific components measured. Support network assessment and measurement are generally conducted in terms of the structural or functional characteristics of the support network.

Support network instruments are capable of examining network characteristics of specific populations such as the chronically ill or the disabled. Also, network measures can identify qualitative (e.g., how satisfied) and quantitative (e.g., how many) aspects of relationships in an individual's network. Network measures consider the structural aspects (i.e., relationships, density, and size) and/or the functional aspects (i.e., type of support) of the network. The qualities of each network relationship can be explored in terms of its intensity, durability, and frequency of contact with the focal person (Sarason et al., 1990; Vaux, 1988). Clearly, network measures serve to illuminate unique features of the individual's support network.

The received support model relates to the assistance others give to or provide for the focal person. Received
support involves the focal person's description of the assistance he or she received from others. Enacted support, a term used by Tardy (1985), describes the utilization of the support resources or the specific acts performed by others to assist the focal person. Both received support and enacted support involve the assistance provided to the focal person by others: the former explores the recipient's view of the assistance received and the latter explores the specific acts provided, respectively (Sarason et al., 1990; Tardy, 1985). Typically, the giver and the recipient of assistance have different perspectives, sometimes dramatically different, regarding the amount of support provided and received. Usually, support providers report giving more support than receivers of the support report receiving (Sarason et al., 1990; Antonucci & Israel, 1986). Although measures of received support and perceived support involve the same focal person, measurements of received support and perceived availability of support differ greatly.

Sarason et al. (1990) theorized that the perceived social support model refers to the individual's perception of the availability of social support and is closely related to that individual's health outcome (Antonucci & Israel, 1986; Wethington & Kessler, 1986). As mentioned in the preceding paragraph, the amount and/or type of support provided is not always consistent with the amount and/or
type of support received. For instance, a family member may believe he or she is being helpful by taking his or her disabled family member to the doctor's office. The disabled family member may, however, perceive this provision of support as more intrusive or obligatory than as supportive. The individual's perception of an interpersonal transaction (i.e., the supportive gesture) is a critical component of social support research. Social support is likely to only be as effective as the support recipient perceives it to be beneficial or helpful. Therefore, it is conceivable that an assessment of an individual's level of perceived social support may provide valuable predictive information regarding future supportive interventions.

Research suggests that it is useful to consider the objective elements related to received social support and the subjective elements related to perceived social support when aspiring to understand the social support phenomenon (Sarason et al., 1990). The objective elements of received social support are the actual activities, events, and behaviors. The subjective elements of perceived social support are the individual's perception and assessment of supportive activities, events, and behaviors. Researchers distinguish between the actual events and activities and the individual's appraisals of events and activities in order to understand the broader context of social relationships.

The individual's cognitive appraisal, or perception, of
a stressor or stressful event, plays a major role in stress and in the resulting coping process (Wilcox & Vernberg, 1985). The coping process incorporates two categories of cognitive appraisal: primary appraisal and secondary appraisal. Primary appraisal refers to the individual's assessment of threat, harm, loss, and/or challenge elicited by the environmental stressor. Secondary appraisal refers to the individual's expectation of the resources available to assist in coping with the environmental stressor (Wilcox & Vernberg, 1985).

Researchers in the areas of stress, social support, and coping believe it is the individual's appraisal of the event and resources available (i.e., social support) to manage the event that stimulates the individual's resulting coping processes (Wilcox & Verberg, 1985; Lazarus & Launier, 1978). This stage of the coping process is an important area of interest when considering perceived social support and rehabilitation. An individual's appraisal of his or her medical condition and the resources available to him or her to cope with the situation may influence rehabilitation outcome.

Support Network vs. Social Network

In social support research, a distinction is made between support networks and social networks. Investigations analyzing an individual's support network only consider individuals who serve supportive functions for
the focal person (i.e., the recipient of the supportive behavior). Social network analysis, on the other hand, examines the entire social system in which the individual is embedded, illuminating the larger interpersonal context of the individual (Tardy, 1985).

A well-established empirical investigation of social network analysis was conducted by Tolsdorf (1976), in his examination of social networks of medical patients and social networks of first-admission schizophrenics. The data was obtained through an extensive interview process. Tolsdorf found that members of the schizophrenic group reported fewer reciprocal and multiplex relationships and a higher ratio of family members in their social network, than members of the medical group. The schizophrenic group reported having fewer members in their support network than did the medical group. In addition, the results suggested that network members maintained a greater position of power over the members in the schizophrenic than was reported by the results of the medical group.

Tolsdorf (1976) examined network size, content exchange areas, functions (i.e., support, advice, and feedback), reciprocity, multiplexity, and other network features. In his research on social network analysis, Tolsdorf found that the limited network available to the schizophrenic group afforded them less assistance in coping effectively with difficulties, whereas the larger network available to the
medical group enabled them more assistance in problem management. Tolsdorf's study aroused interest in the network features of social support, advancing research in exploration of the larger social context of the individual and the expansion of family research.

Network analysis is accurately described in terms of its structure, composition, and component relationships (Vaux, 1988). Prominent structural properties include the size and the density of the network. Specifically, the size of the network refers to the number of people in the network, and the density refers to the interconnectedness of the people in the network (Vaux, 1988; Wagner et al., 1990). From analysis of network structure, researchers are able to make inferences regarding the individual's level of social integration and the supportive resources available to the individual.

Wagner and his colleagues (1990) conducted a study which analyzed the structure of an individual's social network. Wagner et al. examined of the extent to which social factors act as mediating variables on outcome after closed head injury. Due to the social difficulties often associated with an injury to the brain, the researchers sought to determine if structural changes occurred in the social network of the head injured individual after the injury. Wagner et al. speculated that poor recovery from head injury would result in the following: the decrease in
number of friends and confidants, the decrease in social contacts, the increase of close relatives as primary social contacts, the increase in the density of the social network (i.e., consisting of mostly friends and family), and the decrease in satisfaction with the network.

The investigation (Wagner et al., 1990) consisted of a control group (n = 26) and an experimental group (n = 40). The participants in each group were similar; between the ages of 20 and 50 years old, had no previous medical or psychiatric problems, and were not attending college. The only difference between the two groups was the experimental group’s history of a single head injury. For purposes of inclusion in the study, the experimental group scored 80 or more points on the Wechsler Memory Score. The experimental group was 3.35 years posttrauma and was divided into three groups depending on the duration of posttraumatic amnesia reported after the injury. According to Wagner et al., the participants in the study were considered moderately high functioning.

The instruments used in the study (Wagner et al., 1990) included a level of functioning measure and social network measures (Stokes, 1983). The level of functioning instrument was a self-report, 47-item questionnaire measure designed to assess overall level of functioning: physical, cognitive, emotional, avocational, and vocational. In order to increase the reliability of the experimental group’s
self-reported level of functioning measure, a significant other was asked to estimate the participant’s level of functioning. The results of the participant’s measure and the significant other’s measure of reported level of functioning was combined to get an average score of overall functioning; the measures were strongly correlated ($r = .73$, $p < .001$). Additionally, the Glasgow Outcome Scale (Jennett, 1976) was used to evaluate the overall functioning of the experimental group in order to validate the self-report level of functioning measure. A modified version of the Stokes social network measurement questionnaire was used to assess measures of size, density, and number of confidants, friends, relatives, and professionals in the participant’s network. Also measured were the frequency and quality of contacts and the satisfaction of social network.

The self-report variables on the social network questionnaires and the level of functioning comprised the dependent variables in the investigation (Wagner et al., 1990). The data analysis were conducted using the BMDP Statistical Software (Dixon & Brown, 1979) with a level of significance at .05. The results of the level of functioning data showed the control group to be significantly less impaired in overall physical functioning. The researchers found no significant differences between the three head-injured groups (i.e., mild, moderate, and severe) in terms of overall physical functioning. The results of
the qualitative data, in terms of occupational functioning, revealed that only 23% of the head-injured group returned to and maintained their employment level prior to the injury. Therefore, with regard to the network resources available in the work place, the social networks of 77% of the head-injured individuals in the study are significantly impacted after brain injury.

The study (Wagner et al., 1990) analyzed the social networks of the control group and the mild, moderate, and severe head-injured groups. The results of the analysis of variance (ANOVA) on the dimensions (i.e., size, density, number of relatives, number of confidants, number of friends, and frequency of social contacts) of the social network questionnaires indicated a significant difference between groups in the number of friends in the social network density. Specifically, the head-injured participants' networks were more interconnected and had reported fewer social contacts than was reported by the participants in the control group. The social network density of the participants in the moderate head-injured group ($M = .50, SD = .26$), $t(34) = 3.03$, $p < .004$ and the severe head-injured group ($M = .45, SD = .18$), $t(44) = 3.16$, $p < .002$ was significantly more interconnected than reported in the control group.

The researchers (Wagner et al., 1990) performed a stepwise multiple regression analysis in order to determine
the amount of variance in overall level of functioning could be accounted for by social network factors. The dependent variable was the level of functioning and the independent variables used were the variables on the social network questionnaires. The results of the analysis suggest that satisfaction with the social situation and number of friends are predictors of level of functioning following head injury. The study found that the head-injured subjects had fewer social contacts, had fewer friends, were less satisfied with their social networks, and had a more interconnected social network in comparison with the control group. The results of the investigation (Wagner et al., 1990) suggest the predictive use of social network analysis in determining the overall outcome after head injury. In addition, the study confirmed the authors' hypothesis regarding the posttrauma social networks of the head-injured participants. Specifically, the head-injured group reported fewer friends, fewer social contacts, and a higher rate of social network interconnectedness when compared to the control group.

Researchers (House & Kahn, 1985; Vaux, 1988) interested in network composition may include attention to characteristics such as the proportion of friends, co-workers, neighbors, or family members found within the network. Few researchers indicate interest in analyzing the similarity between network members and the focal person in
relation to sex, age, ethnicity, and social status in network composition. The component relationships within the support network can be analyzed in terms of the content of exchanges within the network. Reciprocity or multiplexity of social exchanges within the social network can be identified. Also explored in network analysis are the frequency of contacts, the intensity and durability of relationships, and the geographic proximity of the relationships (House & Kahn, 1985; Vaux, 1988).

Research focusing on social network analysis uncovers an extensive overview of information targeting an individual's existing support system. The information provided by network analysis highlights the social network factors that could be considered mediating variables in overall health or recovery. The social system in which an individual is embedded is unveiled through social network analysis.

Social Support Measurement

Tardy's (1985) review of instruments designed to measure different conceptions of social support organized the diverse operational definitions of social support into five broad categories. The categories which clarify the approaches taken by authors of social support measurement are: direction, disposition, description/evaluation, content, and network. Tardy's review clearly differentiated the approaches taken by social support researchers and
discusses issues associated with defining the complex construct at theoretical and operational levels. Most notably, Tardy's review attempted to clarify and organize key issues of social support measurement into five categories.

According to Tardy (1985), the provision or reception of social support is categorized as **direction**. Instruments designed to measure the direction of social support must decide to study one or both directions of the support transaction. The availability or enactment (i.e., actual use of support resources) of social support relates to the category of **disposition**. The **description/evaluation** category specifies the aim of the study; describing the type of social support and/or assessing satisfaction of social support. The **content** category organizes the overall conceptualization of social support (e.g., House (1981) support content typology: emotional, instrumental aid, informational, and appraisal). The fifth category considers the **network** of social support, examining aspects of the network (i.e., size, density, and number of social contacts) of the people providing and/or receiving support. Tardy emphasized the need of social support researchers to identify the interdependent issues guiding their investigations. Sarason, Shearin, Pierce, and Sarason (1987) agree with Tardy's view of social support measurement, emphasizing the interrelated aspects of social
support measurement.

The lack of information available comparing various social support measures clouds the accuracy and generalizability of the results of measurement (Sarason et al., 1987). Sarason et al. theorized that many instruments designed to measure social support classify the construct according to at least one of the following criteria:

- the number of support persons;
- the interrelatedness of the support group;
- whether the support is provided by family members, friends, or others;
- whether a close or confidant relationship is associated with the support;
- the functions the support fulfills and how they are matched with the person’s needs;
- the adequacy of the support;
- the person’s satisfaction with the support;
- and whether the support is actually provided or perceived to be available if needed. (p. 814)

Sarason et al. (1987) compared frequently used measures of social support. The purpose of their investigation was to determine the similarities among the constructs measured by the social support instruments, albeit their unique theoretical conceptions. In table 1, Sarason et al. organized frequently used social support instruments and identified the type of social support measured by the instrument. The researchers included instruments with reliable psychometric properties from different theoretical perspectives in their investigation.
TABLE 1
SOCIAL SUPPORT INSTRUMENTS

<table>
<thead>
<tr>
<th>Survey</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Support Questionnaire (I.G. Sarason, Levine, Basham, &amp; Sarason, 1983)</td>
<td>Measures the number of perceived available supports, number of perceived family supports, and satisfaction with perceived available support</td>
</tr>
<tr>
<td>Social Network List (Stokes, 1983)</td>
<td>Assesses the subject's perceived social network on characteristics including size, density, and number (and percentage) of friends, relatives, and confidants</td>
</tr>
<tr>
<td>Inventory of Socially Supportive Behaviors (Barrera, Sandler, &amp; Ramsey, 1981)</td>
<td>Measures the frequency of received supportive behaviors in the past month</td>
</tr>
<tr>
<td>Family Environment Scale (Cohesion subscale only; Moos &amp; Moos, 1981)</td>
<td>Assesses the amount of perceived support family members provide for one another</td>
</tr>
<tr>
<td>Interpersonal Support Evaluation List (Cohen, Mermelstein, Kamarck, &amp; Hoberman, 1985)</td>
<td>Measures the perceived availability of tangible support, appraisal support, self-esteem support, and belonging support</td>
</tr>
<tr>
<td>Perceived Social Support from Friends and Family (Procidano &amp; Heller, 1983)</td>
<td>Measures the subject's perceptions of the extent to which family and friends fulfill the individual's need for support, information, and feedback</td>
</tr>
<tr>
<td>Inventory Schedule for Social Interaction (Henderson, Byrne, &amp; Duncan-Jones, 1981)</td>
<td>Assesses both the perceived availability and perceived adequacy for each of two dimensions: attachment and social integration</td>
</tr>
</tbody>
</table>


Sarason et al. (1987) concluded that the various social support instruments, although stemming from different conceptions of the construct, "assess the extent to which an individual is accepted, loved, and involved in relationships
in which communication is open" (p. 830). Due to the distinct theoretical basis of each instrument, the correlations within and between measures differed in terms of the magnitude or significance of the correlation. For instance, Sarason et al. found that the Social Support Questionnaire (SSQ; Sarason, Levine, Basham, & Sarason, 1983), in terms of the Number variable \( r = .43 \), the Family variable \( r = .49 \), and the Satisfaction variable \( r = .50 \) correlated moderately with the Family Environment Scale (FES; Moos & Moos, 1981). The SSQ also correlated moderately with the Inventory of Socially Supportive Behaviors (ISSB; Barrera, Sandler, & Ramsey, 1981), and the Social Network List (SNL; Stokes, 1983). The ISSB, measuring received social support, and the SNL, measuring the social network's structural characteristics, were not highly related to each other. However, the SNL Satisfaction variable \( r = .30 \) and the SNL Percentage of Confidants variable \( r = .16 \) were minimally correlated with the ISSB Emotional Support variable.

Sarason et al. (1987) found high intercorrelations among instruments designed to measure the perceived availability of social support: SSQ, Interpersonal Support Evaluation List (ISEL; Cohen, Merlstein, Kamarck, & Hoberman, 1983), and Perceived Social Support (PSS; Procidano & Heller, 1983). The SSQ, ISEL, and PSS contain variables which are highly related to each other, yet the
researchers found evidence suggesting differential sensitivity of the instruments (e.g., sex differences). For instance, the women who had low scores on the SSQ Satisfaction variable reported perceiving far less family support as indicated by PSS Family variable, in comparison with the men in the sample. Although sample population may account for differences in outcome levels, it is noteworthy that the researchers observed the differential sensitivity of the perceived social support instruments. The sensitivity of instruments designed to assess perceived social support is important for purposes of implementing interventions which are situation and person specific. Sarason et al. (1987) statistically demonstrated the varying degrees of correlation within and between instruments designed to measure social support. Most notably, they discussed the limited value of dissecting the social support measures into discrete functions, which can create a focus too narrow for investigative pursuits. Sarason et al. determined that "a person's experience of being loved and accepted may provide the most accurate assessment of the construct" (p. 831). Therefore, it seems as though Sarason et al. recognized the unique conceptions guiding development of social support instruments, yet they determined that the social support instruments were essentially measuring the same complex construct. In addition, the researchers found that method by which
information about social support is elicited from an individual (e.g., questionnaire, structured interview, or semistructured interview), oftentimes influences measurement outcome. However, they concluded that the method of data collection does not significantly impact the comparability of measures assessing perceived social support.

Clarification in the measurement of social support is an important and necessary step in its clinical application. The literature indicates that the advancement and utility of measures of social support in assessment and prediction have been negatively affected due to vague conceptualizations and differing operationalization of the construct. As seen in table 1, instruments designed to measure perceived social support may have unique theoretical conceptions, yet all seem to successfully tap the principal, underlying construct of social support. The investigator’s primary goal or focus of measurement is a significant determinant in the selection of social support instrument.
CHAPTER IV
RESEARCH REVIEW

Methods

In order to evaluate social support research, various computerized literature searches were conducted. The thorough search included Psychological Abstracts (PsychInfo) (1984-1994), Educational Resources Information Center (ERIC) (1982-1994), and Medline (LMED) (1991-1994). Specific key words used in the computerized literature searches include perceived social support, social support, rehabilitation, stroke, stroke rehabilitation, and physical disability. It is noteworthy that the author found the reference lists of relevant articles to be particularly helpful in locating important theoretical articles and related empirical studies.

PsychInfo listed 11,047 entries for the keyword social support; 1,039 entries for the keyword perceived social support; 14,138 entries for the keyword rehabilitation; and 143 entries for the keywords stroke rehabilitation. The combined keywords social support and stroke rehabilitation resulted in the listing of 8 entries. Perceived social support and stroke rehabilitation keywords elicited only 1
journal entry, investigating psychosocial adjustment after stroke. The keywords perceived social support and physical disability resulted in 6 journal listings, however none of the listed studies targeted a population of stroke survivors.

ERIC listed 2522 entries for the keyword social support; 110 entries for the keywords social support and rehabilitation; 0 entries for the keywords social support and stroke rehabilitation; 45 entries for the keywords social support, rehabilitation, and disability; and 1 entry for the keywords social support, rehabilitation, and physical disability. ERIC displayed 43 entries for the keyword perceived social support; 1 entry for the keywords perceived social support and rehabilitation, investigating a population of brain-injured individuals; and 0 entries for the keywords perceived social support and stroke rehabilitation.

LME listed 155 entries for the keyword perceived social support; 9 entries for the keywords social support and stroke rehabilitation; 12 entries for perceived social support and rehabilitation; 2 entries for the keywords perceived social support and stroke, 1 study investigating measures of poststroke depression and 1 study investigating measures of poststroke functional status recovery; and 0 entries for the keywords perceived social support and stroke rehabilitation.
The criteria used for inclusion in the research review are (1) the study used a well-documented, psychometrically sound measure of perceived social support, (2) the study sample consisted of first-time stroke survivors, and (3) functional status (ADL) was one of the outcome measures. The rationale for the inclusion criteria was simply to cross-reference frequently used criteria germane to social support research and stroke research. The third criterion, pertaining to the inclusion of one outcome measure of functional status recovery, reflects the author's interest in this area of research. Only one empirical study met the inclusion criteria.

Findings

Numerous theoretical discussions of perceived social support are available in the social support literature. The literature demonstrates a lack of empirical investigations designed to study perceived social support in relation to functional status recovery after illness or injury. Moreover, empirical investigations studying perceived social support in relation to rehabilitation from stroke are scarce. The criteria used for inclusion in the research review allowed for one study to be presented herein. Empirical studies that used at least one measure of perceived social support to investigate its impact on physical adjustment to stroke was the aim of the research review.
The investigation conducted by Glass, Matcher, Belyea, and Feussner (1993) was the sole study which met the inclusion criteria in the review of the research. Glass et al. simply state, "no studies to date have explicitly explored the relative impact of varying amounts of support on outcome" (p. 65). Glass and his colleagues (1993) conducted a longitudinal study involving 46 first-time stroke survivors over a 6-month period after acute onset of stroke. The 46 participants included in the study gave informed consent, were over 40 years old and living within 100 miles of Duke University, were admitted within 24 hours of onset of neurological symptoms, had measurable deficit upon hospital admission but had no preexisting stroke deficit, had stroke deficit lasting more than 24 hours but had no medical condition which predicted death within six months. The patient’s computed tomographic scan had to rule out hemorrhagic stroke, therefore the patient population included in the present study suffered ischemic stroke.

Glass and his colleagues (1993) used the repeated-measures multivariate analysis of variance (MANOVA) to study the determinants of change in ADLs. The MANOVA was used to examine the growth curve in intervals over the 6-month period. The patient’s perceived social support was measured at standard measurement intervals, one, three, and six months after stroke onset. Glass et al. used the Inventory of Socially Supportive Behaviors (ISSB; Barrera, 1980), to
measure the patient's perceptions regarding the availability of social support within the previous four weeks. Glass et al. measured three subscales of different dimensions of social support (emotional, informational, instrumental) in order to arrive at an index of perceived social support. Proxy respondents, most of whom were the patient's spouse or living in the same home with the patient, were used for the few patients who could not complete the ISSB questionnaire. In such cases, the information gathered from the proxy respondents was used for analysis.

The outcome variable in the study, change in functional status, was measured by the Barthel Index (BI; Granger, Dewis, Peters, Sherwood, & Barrett, 1979; Granger, Hamilton, Gresham, & Kramer, 1989) of ADLs. The BI was collected at five days, one, three, and six months after stroke onset. The patients had their stroke severity assessed at the time of admission by the Oxbury Level of Consciousness Scale (LOC; Oxbury, Greenhall, & Granger, 1975). The patients were divided into two groups, depending upon stroke severity as determined by the LOC. The patients were again divided into three groups representing low, medium, and high levels of social support, as determined by scores on the ISSB. Glass et al. used the MANOVA in order to demonstrate the effect of social support on the growth curve (i.e., changes in functional status) over time.

The results of the repeated-measures MANOVA showed a
significant interaction affect between perceived social support and time (p < .002) suggesting that patients with higher perceived availability of social support improve most over time. The three-way interaction among time, severity, and support was investigated. The multivariate results showed support and severity to be significant (p < .012) is suggestive of social support not equally benefiting patients with more severe strokes, this particular group requiring higher levels of support over time. Further, the results of the study demonstrated that patients with moderate/severe strokes required higher levels of social support that are maintained over a longer period of time, when compared to patients with mild or moderate stroke severity.

The authors found that the functional status of stroke patients does not greatly differ before discharge across levels of social support (i.e., low, medium, high). However, at six months poststroke, the mean level of ADLs show that patients with more social support, as assessed by the ISSB, had higher rates of recovery. In fact, there was a 27-point difference in mean level of ADLs found between the high support group and the low support group at six months poststroke. The study established that the impact of social support appeared to "unfold gradually and cumulatively". Most notably, the high support group had the lowest baseline ADLs upon hospital discharge, yet this group's rate of recovery and improved functional status was
faster and more extensive than that of the groups with less measured perceived social support. Patients in the low support group improved at an average rate in the first 2 months upon discharge. However, the low support group’s mean level of ADLs began to decline in functional capacity and a reversal in recovery appeared.

This study clearly indicates that stroke survivors with higher levels of perceived social support improve in functional status (i.e., ADLs) faster and more extensively than those patients with lower levels of perceived social support. The conclusions of this study can be used to predict the functional status recovery of stroke patients over time, upon hospital discharge. The hospital staff can intervene prior to patient’s discharge and attempt to bolster support from the patient’s support network (i.e., family and friends) in situations of low or inadequate support.

The Glass et al. (1993) investigation supports and strengthens the hypothesis that social support has beneficial effects in recovery from stroke. Glass et al. found evidence concluding that social support did not significantly impact the recovery of the stroke patient during the first month after stroke. Therefore, it seems reasonable to surmise that studies designed to examine the effect of perceived social support on physical recovery from stroke would require longitudinal investigations. The more
convenient cross-sectional study design might not fully capture the dynamic course of functional improvement and recovery associated with social support and stroke research. Most importantly, the cross-sectional design fails to acknowledge critical points of poststroke intervention dependent upon factors such as time, level of support, and severity of stroke.

In sum, Glass et al.'s (1993) investigation offers useful, albeit preliminary, information in the examination of perceived social support with regard functional status recovery after stroke. A limitation of the investigation was the method of data collection, the investigators used questionnaires as the only source of data collection in the study. Perhaps the investigators' use of more qualitative data collection, such as semistructured interviews, would have yielded more insight into the dynamic processes occurring throughout the individual's mental and physical recovery from stroke. Moreover, the 6-month study proclaiming to follow participants over time, is merely the beginning of the adjustment and the recovery stages for stroke survivors whose impairments and residual effects often last several years or last a lifetime.

Discussion

The review of the research on perceived social support establishes its potential predictive ability in relation to functional status recovery after stroke. Glass et al.
(1993) demonstrated the positive influence associated with higher levels of perceived availability of social support in an identified population (i.e., first-time stroke survivors) over time. Studies have been presented throughout this review of the social support literature which suggest the existence of an association between perceived availability of social support and physical health outcome. However, studies examining the impact of perceived social support on physical health outcome of stroke survivors are rare.

Although many researchers theorize that social support serves a health-protective function, moderating the negative impact of stress on the individual, few researchers investigate physical change and/or recovery as an outcome variable. The findings of this review of the social support literature suggested that research conducted in the areas of social support and stroke are almost exclusively focused on psychosocial adjustment after stroke (e.g., Birket-Smith, Knudsen, Nissen, Blegvad, Kohler, Rasmussen, & Worm-Peterson, 1989; Colantonio, Kasl, Ostfeld, & Berkman, 1993; Evans, Bishop, & Haselkorn, 1991; Evans & Northwood, 1983; Friedland & McColl, 1992; Glass & Maddox, 1992). Due to the substantial number of stroke survivors in the United States, future research is warranted to determine the predictive ability of perceived availability of social support on functional status recovery of stroke survivors. Future investigation in social support and stroke research
needs to synthesize the theoretical and empirical research available in the literature and explore ways that improve functional recovery rates over time.

A future study might be a longitudinal investigation examining the differences between patients who were medically treated and who were not medically treated within the first 24 hours of acute onset of stroke. The suggested investigation may have strong implications regarding available social support resources of stroke survivors. What can researchers predict about the group of stroke patients not admitted for medical treatment within the first 24 hours of initial neurologic symptoms? Perhaps family and friends are unavailable to the patient, possibly reflecting low levels social support. An investigation aimed at answering these particular questions may assist in enabling health care professionals implement situation-specific interventions. This information would prove useful in strengthening existing family ties, bolstering family support, and creating an awareness among family and friends of the resources available to the stroke patient upon discharge to assist with care. This could prove to be a crucial intervention considering the plateau and reversal effects of recovery of ADLs of people who have low social support.

It has been documented (Glass et al., 1993) that high levels of perceived social support increase stroke
survivors’ functional status more rapidly and extensively over time. It is seemingly possible that higher levels of perceived social support impacts the patient’s recovery from stroke, as well as family, friends, informal caregivers, health care professionals, and outpatient services in contact with and caring for the stroke survivor. Therefore, the implications of future studies investigating the impact of perceived social support and stroke rehabilitation would be meaningful and far-reaching.

The findings of studies such as Glass et al. (1993) supports and strengthens the idea that social support can be beneficial in recovery from stroke. Functional status upon discharge may be misleading because patients appear to reach a plateau and then fall in the mean level of ADLs, which has important implications for timely and appropriate interventions over time. Paradoxically, patients with milder strokes may be at greater risk for social isolation and less favorable rehabilitation outcome than more severely impaired patients, due to inadequate support from family and friends who may underestimate the patient’s need for support (Glass et al., 1993).

The impact of perceived social support on physical recovery from stroke is hypothesized to unfold over time. The impact of the perceived social support may be diminished in cross-sectional designs or in research which uses discharge measures as end points. Future research,
longitudinal in design, is warranted to determine the predictive potential of perceived social support in physical recovery from stroke. Thus far, one empirical investigation synthesizes social support research and stroke research in relation to functional status recovery. The lack of research in this area is evident, warranting future research.
September 12, 1994

Ms. Mary C. Heffernan
1725 Wagner Road
Glenview, Illinois 60025

Dear Ms. Heffernan:

You have my permission to use a portion of Table I of the article entitled, "Interrelations of Social Support Measures: Theoretical and Practical Implications" *JPSP*, 52, 813-832, in your research.

I would appreciate it if you would send me a report of your research after it is completed.

Good luck in your work.

Sincerely,

Barbara R. Sarason
Research Professor

bj
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VITA

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APPROVAL SHEET

The thesis submitted by Mary Catherine Heffernan has been read and approved by the following committee:

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The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the committee with reference to content and form.

The thesis is, therefore, accepted in partial fulfillment of the requirements for the degree of Master of Arts.

11/21/94
Date

[Signature]
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