

THE CATHOLIC UNIVERSITY OF AMERICA

The Relationship between Health Locus of Control, Perceived
Self-Efficacy, Hardiness, and Recovery in Schizophrenia

A DISSERTATION

Submitted to the Faculty of the
School of Nursing
Of The Catholic University of America
In Partial Fulfillment of the Requirements
For the Degree
Doctor of Nursing Science

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Washington, D.C.

1995

ABSTRACT

The Relationship between Health Locus of Control, Perceived Self-Efficacy, Hardiness, and Recovery in Schizophrenia

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Approximately 1 out of 100 persons in the United States will be diagnosed as schizophrenic at some point in their lives. As an illness with onset in late adolescence or early young adulthood, schizophrenia has been described as having a homogeneous course of long-term chronicity. Recent literature has delineated more heterogeneity of outcome, but studies identifying factors related to recovery have been sparse. Using as a theoretical framework the stress-vulnerability model of schizophrenia, and concepts from social learning theory and existential psychology, this study examined the relationship between health locus of control, perceived self-efficacy, hardiness, and recovery, and which would be the best predictor of recovery.

With a descriptive, correlational, ex post facto design, the study was conducted in nineteen outpatient mental health facilities using a purposive sample of 85 outpatient subjects with a DSM-III-R diagnosis of schizophrenia or schizoaffective disorder. Instruments included Strauss-Carpenter Level of

Function Scale, Multidimensional Health Locus of Control Scale, Self-Efficacy Scale for Schizophrenic-Spectrum Disorders, and Health-Related Hardiness Scale.

Only one of the hypotheses was supported; findings demonstrated that there was a significant relationship between health-related hardiness and level of function. Although entered fourth in the hierarchical model of the regression analysis, health-related hardiness was the only significant predictor of recovery, explaining approximately 9% of the variance. An additional finding was a significant negative relationship between chance health locus of control and level of function.

Implications of the study include the need for nurses to recognize that a negative belief in the role of chance as controlling one's health was associated with recovery and should be pursued through factual education about the illness, its causes, course, and treatment. Nursing interventions that focus on internal efforts and traditional expectations of control or mastery of schizophrenia by the client may be counterproductive. Nurses should recognize hardiness as a personality characteristic present in some individuals with schizophrenia and support the development of the elements of hardiness. Elements include a sense of control as expressed in a negative belief in the role of chance as controlling one's health and a commitment to dealing with the challenge of chronic illness.

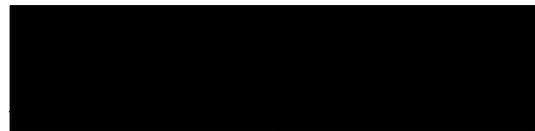
This dissertation was approved by Jane H. White, D.N.Sc.,
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R.N., and Ernest D. Lapierre, D.S.N., R.N., C.S., as Readers.



Director



Reader



Reader

DEDICATION

To

The individuals who participated in this study,
and who shared with me
their experience of the illness
called schizophrenia.

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ACKNOWLEDGEMENTS

Special thanks are extended to my dissertation committee for assisting me through the rigorous process of doctoral study. I wish to express my deep appreciation to my major professor, Dr. Jane H. White, for her encouragement and support throughout the study. Without her guidance, this undertaking would not have been possible. I would also like to thank Dr. Ernest Lapierre for his support from the earliest stages of my proposal approval to the completion of my dissertation, and Dr. Mary Ann Schroeder for her role as first reader.

Particular appreciation is also extended to my family, who supported me throughout the time required to complete this project, and understood my need to do this. Their encouragement, humor, and love have meant a great deal. Whatever has been accomplished, must, in some part, be attributed to them. Many thanks to all.

CHAPTER I
INTRODUCTION

Background

Nurses in mental health settings are continually interacting with a steady stream of clients, many of whom are known as the chronically mentally ill. Among these are a large portion of clients diagnosed as schizophrenic. Current statistics outline the diagnosis of schizophrenia as occurring 60 times more frequently than muscular dystrophy, six times more often than insulin-dependent diabetes, and five times more often than multiple sclerosis (Gunby, 1990). Recidivism or the "revolving door" concept of frequent hospital readmission often seems a way of life for individuals diagnosed as schizophrenic (Beebe, 1990; Gallop & Wynn, 1986; Hicks, 1989).

Clients who appear on hospital inpatient units with one episode of schizophrenia and never return, or who manage well in the community with only a few brief hospitalizations, are often forgotten as part of the actual patient group served by mental health professionals. Recent literature has described patterns of illness in schizophrenia that are not the usual homogeneous picture of long-term chronicity outlined in the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 1987). Rather than a tendency toward long-term recurrent course with deterioration in social relationships and work abilities, a heterogeneity of

outcome is delineated even in more chronic schizophrenic patients (Harding, Brooks, Ashikaga, Strauss, & Breier, 1987; Harding, Zubin & Strauss, 1987). Englehardt, Rosen, Feldman, Englehardt, and Cohen (1982) in a 15-year retrospective study found that 41% of their outpatient based sample of schizophrenic clients were never hospitalized for psychiatric illness; 38% of the most-hospitalized group prior to clinic admission also had no major psychiatric hospitalizations in the follow-up years. Fenton and McGlashan (1987) report 14% of their sample of schizophrenic clients sustained remission for 10 to 15 years after index hospitalization, although all had previously experienced at least three psychiatric hospitalizations. Harding (1986) states that in a comparison across five recent longitudinal studies of schizophrenia, "One half to two thirds of nearly 1300 patients followed over two to three decades have significantly improved or recovered" (p. 201). Thus, the need for attention to clients who adapt or adjust well over time in tandem with those who have chronic problems seems essential in order to view the total spectrum of patient experience with schizophrenia.

Many outcome studies of persons with mental illness such as schizophrenia focus on hospital readmissions or factors that contribute to difficulties faced by the patient on return to the community (Avison & Speechley, 1987; Englehardt et al., 1982; Hicks, 1989; Rabiner, Wegner, & Kane 1986). Among the factors that have been explored in reference to schizophrenia are family environment and concerns, social support systems,

clients' lack of social skills, problems with medication management, and patients' attitudes toward psychosis. For patients who live with or are in close contact with family members, the concept of expressed emotion and its relationship to relapse in schizophrenia has been an important area of research (Falloon, 1988; Falloon et al., 1982; Kanter, Lamb, & Loeper, 1987). Falloon (1988) defines expressed emotion as the emotional response of key household members to the patient's behavioral disturbance. Family needs for support and education about schizophrenia have been a focus of study (Falloon et al., 1982; Greenberg et al., 1988; Hogarty et al., 1986; Jed, 1989). Social support systems of patients and their effect on the patient's ability to adapt outside of hospital settings have been explored by Breier and Strauss (1984), Sommers (1988), and Cohen and Kochanowicz (1989). Hierholzer and Liberman (1986) and Hogarty et al. describe specific research programs to enhance the social and interpersonal skills of schizophrenic clients. The need for medication management and its effect on outcome has been highlighted as essential for many clients (Falloon et al., 1982; Hogarty et al., 1986; Rabiner et al., 1986). Research programs have been developed to include this facet of care (Eckman & Liberman, 1990; Hogarty et al., 1986). Doolittle (1980) and McGlashan and Carpenter (1981) have explored factors such as attitudes toward psychosis in schizophrenic patients as this relates to outcome.

The nursing literature reflects similar topical areas. Educational needs of patients and families (Moller & Wer, 1989; Williams, 1989), respite care (Geiser, Hoche, & King, 1988), social support needs of patients (Hicks, 1989), use of symptoms by patients to manage and monitor their illness (McCandless-Glimcher et al., 1986), and better medication management (Driscoll, 1985; Sullinger, 1988) are currently concerns in clients with a diagnosis of schizophrenia.

Nurses describe their role in the care of clients with mental illnesses such as schizophrenia as one of expanding the well part of the person, building on strengths, actualizing expertise in caring, and building health-engendering alliances (Hicks, 1989; Krauss, 1989; Munjas, 1986). A few nurse researchers have looked at outcome in mental illness by way of factors which contribute to recovery rather than those preventing relapse. Among those with a focus on recovery are Plum (1987) and Joyce, Staley, and Hughes (1990). One criticism in the literature on schizophrenia is the lack of research in identifying factors that are conducive to successful adjustment or recovery rather than pathological factors that put clients at risk for recurrence (Avison & Speechley, 1987; Deegan, 1988; Englehardt et al., 1982; Kanter et al., 1987).

Locus of control and health locus of control has been an important variable studied in some literature on recovery. Jenkins (1988) found that among schizophrenic clients in remission those less vulnerable to recurrence scored in the

internal direction on a locus of control measure. Warner, Taylor, Powers, and Hyman (1989) in a study with clients who had experienced an episode of psychosis found that those who accepted a diagnosis of mental illness and had an internal locus of control had better outcome. Self-reports of clients attesting to the importance of a sense of control in favorable outcome and recovery in schizophrenia have been described in qualitative studies by Breier and Strauss (1983) and Rakfeldt and Strauss (1989). In nursing McCandless-Glimcher et al. (1986) explored the use of symptom monitoring by clients with schizophrenia as an individual control mechanism to deal with their illness more constructively.

Self-efficacy theory has provided a basis for research on effective treatment and recovery in such diverse mental health disorders as phobias (Bandura, 1977; Williams, Kinney, & Falba, 1989) and depression (Kavanaugh & Wilson, 1989; Usaf & Kavanaugh, 1990). Wassem (1989), a nurse researcher, found that self-efficacy was a valid predictor of adjustment to chronic disability in physical illness. The concept of self-efficacy has been utilized in work with clients who have had episodes of schizophrenia to enhance functioning in day treatment programs (Brown, 1987; Phillips, 1986) and in work-related social skills programs (Portelunas-Campbell, 1982).

The nursing literature has provided validation of hardiness as a characteristic influencing adaptation to such chronic medical illnesses as diabetes, hypertension, multiple sclerosis, and rheumatoid arthritis (Lambert, Lambert,

Klippel, & Mewshaw, 1989; Pollock, Christian, & Sands, 1990). Subjective data implying hardiness in schizophrenic clients are noted in Hatfield's (1989) review of first-person accounts of coping and recovery, Deegan's (1988) account of her personal recovery from illness, and by Strauss (1989) in findings from his ongoing qualitative study with schizophrenic clients.

Therefore, a nursing study which focuses on the foregoing factors of health locus of control, perceived self-efficacy, and hardiness as variables which may contribute to recovery in clients with schizophrenia can provide nurses with knowledge in a relatively unexplored area. The nurse's role of building on strengths and enhancing adaptation to a sometimes chronic illness requires factual data on which to base practice. Thus, this study focused on the variables of health locus of control, perceived self-efficacy, and hardiness as factors relevant to nursing practice that may contribute to recovery in clients with schizophrenia.

Purpose of the Study

The purpose of this study was twofold, first, to determine whether the variables of health locus of control, perceived self-efficacy, and hardiness were related to recovery in schizophrenia. A second purpose was to determine which of the three might be the best predictor of recovery in schizophrenia.

Theoretical Framework

Abramson, Metalsky, and Alloy (1989) note that in describing or considering the course of a mental health disorder, certain concepts need to be distinguished. They refer to recovery as remission of a given episode of a disorder. Relapse is "a return of clinically significant symptoms within a relatively short period following remission, whereas recurrence is the onset of a new episode following a prolonged interval of remission" (Abramson et al., 1989, p. 363). Harding (1986), however, states that "being 'in remission' carries with it a heavy, impending time bomb effect" (p. 202) as though waiting for recurrence. In addition, nursing as a discipline looks to the health of the client and responses to human illness as they can be related to potentials for growth. In view of these perspectives, in this study the term recovery will be used to indicate the end of an episode of illness for an individual client. Rather than being 'in remission' with the implication of recurrence, the client will be described as 'recovered'. Several important frameworks undergird the study's focus: the stress-vulnerability model of schizophrenia and concepts from social learning theory and existential psychology.

The Stress-Vulnerability Model of Schizophrenia

Zubin and Spring (1977), Zubin, Magaziner, and Steinhauer (1983), and Day, Zubin, and Steinhauer (1987) have developed the stress-vulnerability model of schizophrenia. This model describes schizophrenia as a disorder occurring only in

etiologically vulnerable individuals, with some type of life event stressors--either exogenous or endogenous--triggering an episode. Recurrent illness is due to the impact of life event stressors superimposed upon overall vulnerability unless some modulating variables intervene to prevent it. Overall vulnerability may result from a variety of different factors, biological and genetic to socio-environmental. The life events act as a trigger that exceeds the person's stress tolerance threshold, causing a crisis, which then develops into an episode of illness. Life event stressors labeled endogenous might include some type of physical illness, while life event stressors seen as exogenous could be a traffic accident, the death of a friend, or chronic negative, repetitive stressors such as arguments with close family members. Zubin et al. (1983) state that in this model the mental health of a vulnerable person is not seen as a temporary respite from illness, but rather that an episode of illness "may be a temporary interruption of an essentially healthy life" (p. 552).

In the stress-vulnerability framework schizophrenia becomes an episodic illness like many others. Chronic illness in terms of recidivism is explained by describing several types of patients, including those who were discharged from treatment before the end of an episode of illness and suffered a relapse, and those who recovered from an episode of illness but experienced the recurrence of a new episode. Recurrence of a series of episodes in rapid succession may be the

experience of another group of patients. In addition, Zubin et al. (1983) note that some individuals have never been able to make a satisfactory adjustment to society, and following an episode of schizophrenia, this same difficulty will be apparent. Finally, Day et al. (1987) describe a small group of people--perhaps up to 10%-- who remain chronically ill without a true remission. They also identify some whose coping ability deteriorates in the face of stigma and isolation in the community or the hospital after recurrent illness.

Zubin et al. (1983) include modulating variables as being significant in the development of episodes of illness apart from specific vulnerability and life event stressors. Modulating variables either cushion the impact of stressors or allow stressors to have maximum impact. Zubin and colleagues state that a variety of factors act in this way: the person's social status, social network, and support; the physical aspects of their environment; and individual personality structure and characteristics. Day et al. (1987) describe the impact of the physical and/or social environments as potentially part of the overall stressfulness of the immediate environment. They may decrease or increase the impact of a triggering life event depending on the structure and/or degree of support which those environments provide. Personality factors--competence, coping skills--are described as crucial to the vulnerability model. These represent "the individual's capacity to actively respond to potentially stressful

challenges presented by the environment" (Day et al., 1987, p. 31).

Social Learning Theory and Existential Psychology

Social learning theory is "an approach to the study of human behavior that assumes that the study of personality is best viewed as the study of social cognition (beliefs and attitudes about people) and interpersonal behavior" (Maddux, 1988, p. 233). It proposes that cognitive mediators, or the thoughts and beliefs one holds about his or her environment and own behavior, are the most important determinants of the individual's behavior. Two concepts derived from social learning theory which were utilized as variables in this study are locus of control (Rotter, 1966, 1975) and perceived self-efficacy (Bandura, 1977, 1989).

Rotter (1975) defines locus of control as a continuum of beliefs about control of reinforcements of behavior ranging from external at one end to internal at the opposite end. The individual with a locus of control described as external perceives reinforcement or outcome "as following some action of his own but not being entirely contingent upon his action" (Rotter, 1966, p. 1). The person with an internal locus of control "perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics" (Rotter, 1966, p. 1). In our culture a belief in external locus of control results in attributions of control to luck, chance, fate, or powerful other people. The majority of individuals cluster in the mid-range of the continuum. Rotter

(1975) also highlights the need to consider the value of the outcome of a situation to an individual; this is central to predicting or understanding the person's behavior. Wallston and Wallston (1982) have brought the theory of locus of control into situations related to health outcomes via the construct of health locus of control, with a similar internal-external (I-E) continuum of beliefs. In regard to severe mental illness such as schizophrenia, the health locus of control belief of the client may be crucial to understanding their progress in recovery. Whether the client values health and recovery and believes that he or she has some power over achieving it will play an important role in determining their behavior.

Bandura (1989) has delineated the concept of self-efficacy and states:

Self-generated activities lie at the very heart of causal processes. They not only contribute to the meaning and valence of most external influences, but they also function as important proximal determinants of motivation and action. The capacity to exercise control over one's own thought processes, motivation, and action is a distinctively human characteristic. Because judgments and actions are partly self-determined, people can effect change in themselves and their situations through their own efforts (p. 1175).

Maddux (1988) uses the term personal efficacy to refer to a person's general sense of competence and their beliefs about their ability to attain goals of value to them in life. Self-efficacy expectations are more specific to time and place, referring to beliefs about one's capability in performing a specific behavior to achieve a certain goal. According to Bandura (1977) "expectations of personal efficacy determine whether coping behavior will be initiated, how much effort will be expended, and how long it will be sustained" (p. 191). Efficacy expectations vary in dimension according to magnitude, generality, and strength (Bandura, 1977). Efficacy expectations of the greatest magnitude indicate a belief in one's capability to master the most taxing accomplishments, while those of the least magnitude would mean a belief in one's ability to complete the simplest tasks. Generality of efficacy expectations refers to whether or not experiences create circumscribed mastery expectations or a more generalized sense of efficacy that goes beyond the specific situation. The strength of efficacy expectations indicates whether these expectations are easily extinguished by failure experiences, or whether the person will persevere in their coping efforts despite rejection or failure experiences. Bandura (1977) hypothesizes that expectations of personal efficacy are based on four major sources of information utilized by the individual: performance experiences of mastery, vicarious experiences through observing others, verbal persuasion, and physiologic response or arousal in

specific situations, interpreted as fear, anger, sorrow, etc. In order to understand the impact of an episode of schizophrenia on a client and their subsequent recovery, one needs to consider that person's sense of self-efficacy and personal competence as modulating variables in determining efforts to cope and master the experience of illness and other life events.

Using a basis from existential psychology, Kobasa (1979) identifies the concept of hardiness as a specific personality trait possessed by some individuals which serves as a mediating factor that affects the way they respond to stress. Kobasa (1982) notes that "persons can rise to the challenges of their environment and turn stressful life events into possibilities or opportunities for personal growth and benefit" (p. 6). The elements of hardiness are: (a) a belief that one can control or influence events in one's life experience, (b) the ability to feel committed to activities such as work, family, community and personal goals, and (c) the anticipation of change as challenge rather than threat. Control is further defined to encompass decisional control, i.e. autonomous choice among alternatives to handle stress; cognitive control, i.e. interpreting and incorporating stressful events in such a way as to integrate them constructively into one's life plan; and coping skill, i.e. a repertoire of appropriate responses to stress "developed through a characteristic motivation to achieve across all situations" (Kobasa, 1979, p. 3). The presence or absence of

hardiness is thus hypothesized to influence a person's vulnerability to withstand stress and would have impact on their ability to maintain recovery after an episode of schizophrenia.

The concept of hardiness in persons with actual health problems has been developed by Pollock and Duffy (1990) as health-related hardiness. The same control and commitment/challenge elements of the construct are identified, with commitment to dealing with the stressor of chronic illness also defined as the challenge. Integration into the theoretical framework of this study of the above constructs-- health locus of control, perceived self-efficacy, and hardiness--provides a format for understanding aspects of individual personality as modulating factors in the onset of an episode of schizophrenia.

Statement of the Research Question

The research question to be investigated was: Are the concepts of health locus of control, perceived self-efficacy, and hardiness related to recovery in schizophrenia? A related research question was: Which of these is the best predictor of recovery in schizophrenia?

Research Hypotheses

Five research hypotheses were tested in this study.

Hypothesis 1

Subjects who have higher levels of perceived self-efficacy will demonstrate higher levels of function than those with low levels of perceived self-efficacy.

Hypothesis 2

Subjects who demonstrate a high internal health locus of control will achieve higher levels of function than those with low internal health locus of control.

Hypothesis 3

Subjects who demonstrate a high powerful other health locus of control will achieve higher levels of function than those with low powerful other health locus of control.

Hypothesis 4

Subjects with a high level of health-related hardiness will demonstrate higher levels of function than those with low levels of health-related hardiness.

Hypothesis 5

Perceived self-efficacy will explain more of the variance in prediction of level of function than any of the other three variables.

Definition of Terms

For the purpose of this study the terms are defined as follows:

Schizophrenia:

Theoretical: a mental health disorder of episodic nature occurring in vulnerable individuals with life event stressors acting as a trigger to the onset of an illness episode unless modulating variables intervene to prevent it (Zubin, Magaziner, & Steinhauer, 1983).

Operational: DSM-III-R (American Psychiatric Association, 1987) diagnosis, stated on the patient's chart in

current psychiatric health care facility by the individual's psychiatrist. Diagnostic criteria for schizophrenia differs in some characteristics from DSM-III-R (1987) third edition, revised, to the DSM-IV (1994) fourth edition. Because this study was completed using DSM-III-R third edition criteria, references throughout are to that edition.

Recovery:

Theoretical: the end of an episode of illness, or remission of a given episode of a mental health disorder (Abramson, Metalsky, & Alloy, 1989); this implies an improvement in symptoms, social activity, employment, overall functioning, and absence of hospitalization (Strauss & Carpenter, 1972).

Operational: quantitative outcome scores on the Strauss-Carpenter Level of Function Scale (1972), 1989 version, revised, above a score of 24.

Level of function:

Theoretical: a measure of recovery in schizophrenia based on a systems framework, including the factors of length of hospitalizations, quantity and quality of social relations and employment, presence/absence of psychiatric symptomatology, self-care ability in meeting basic needs, and an overall global rating of client function (Hawk, Carpenter, & Strauss, 1975; Strauss & Carpenter, 1972).

Operational: the quantitative outcome scores on the Strauss-Carpenter Level of Function Scale (1972), 1989 version, revised (See Appendix D).

Health locus of control:

Theoretical: a personality variable defined as a belief about control of the outcomes of behavior in a situation related to health ranging on a continuum of control by external forces--luck, fate, chance or powerful others--to control being entirely contingent upon one's own behavior. Beliefs at the former end of the continuum are labeled as an external health locus of control and beliefs at the latter end as internal health locus of control (Rotter, 1975; Wallston & Wallston, 1982).

Operational: the quantitative scores achieved on the Multidimensional Health Locus of Control Scale (Wallston, Wallston, & DeVellis, 1978) (See Appendix A).

Perceived self-efficacy:

Theoretical: a personality variable defined as a belief about one's capability or lack of capability to perform a specific behavior to reach a particular goal. Generalized beliefs about personal competence are termed a sense of 'personal efficacy', while more situation-specific beliefs are termed 'self-efficacy' expectations (Bandura, 1977; Maddux, 1988).

Operational: the quantitative scores achieved on the Self-Efficacy Scale for Schizophrenic-Spectrum Disorders (McDermott, 1989) (See Appendix B).

Hardiness:

Theoretical: a personality characteristic defined as a construct made up of three elements: (a) a belief that one

can control or influence events in one's life experience, (b) the ability to feel committed to activities such as work, family, community, and personal goals, and (c) the anticipation of change as challenge rather than threat (Kobasa, 1979, 1982). Health-related hardiness refers to the presence of this characteristic in individuals with actual health problems (Pollock & Duffy, 1990).

Operational: the quantitative scores achieved on the Health-Related Hardiness Scale (Pollock & Duffy, 1990) (See Appendix C).

Significance of the Study

A research study in nursing that focuses on factors conducive to recovery in schizophrenia should help to illuminate the process of recovery from severe mental illness. From this study some understanding about specific personality variables and their presence, impact, or absence in clients who have recovered from an episode of schizophrenia should emerge. This can assist in providing a foundation of knowledge for later research in developing ways to support and perhaps teach characteristics essential to achieving various degrees of health and wellness. The role of the nurse in building health-engendering alliances and expanding the well part of the person should be strengthened by a more firm basis for theoretically sound assessment and interventions utilizing these factors in practice. Ultimately the client who is the recipient of nursing care should benefit from such interventions. As described by Lovejoy (1984), the goal of

the mental health professional should be to "address the need for hopeful and happy lives" (p. 812) for the clients who are served.

Assumptions

Several assumptions form the foundation for this research:

1. The diagnosis of schizophrenia made by the attending psychiatrists for all clients in the study is accurate.
2. Thought process and insight of outpatient clients with schizophrenia is adequate to understand and respond to self-report questionnaires.
3. Self-reports of social and work functioning, and ratings of individual beliefs and perceptions are honestly answered by clients.

Limitations

1. The sample was purposive and limited to one geographic area of the Middle Atlantic states of the United States. Therefore, the application of the findings is limited to the sample studied, and to similar samples, but with caution.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The purpose of this study was twofold, first, to determine whether the variables of health locus of control, perceived self-efficacy, and hardiness were related to recovery in schizophrenia. A second purpose was to determine which of the three might be the best predictor of recovery in schizophrenia. This chapter focuses on the topics of (a) schizophrenia, its definition, prevalence and incidence, and significance as a problem to nursing; (b) recovery in schizophrenia, its definition, and research on schizophrenia and recovery; and the variables chosen to study: (c) health locus of control, its conceptual definition, and research utilizing the concept; (d) perceived self-efficacy, its conceptual definition, and research utilizing the concept; and, (e) hardiness, its conceptual definition in persons with actual health problems, and research utilizing the concept.

Schizophrenia

In the framework of Zubin et al. (1983) schizophrenia is defined as a mental health disorder of episodic nature occurring in vulnerable individuals with life event stressors acting as a trigger to the onset of an illness episode. Modulating variables in the form of social/physical environmental factors and individual personality factors may intervene to prevent or exacerbate the episode of illness.

Estimates of the incidence of schizophrenia identify approximately one out of 100 persons in the United States as being diagnosed as schizophrenic at some point in their lives (Torrey, 1988). Current prevalence rates estimate that there are about 1.2 million people in the United States with schizophrenia, 1.6 million including those who have recovered (Torrey, 1988). Schizophrenia is diagnosed with equal frequency in men and women, but is likely to be found much more often in the lowest economic groups nationwide according to National Institute of Mental Health statistics (Gunby, 1990). Each day approximately 118 people in the United States are diagnosed as schizophrenic for the first time (Torrey, 1988). Westermeyer (1985) and Foster and Anderson (1978) from a cross-cultural perspective have described schizophrenia as occurring in all cultures of the world. Although containing variations across cultures and sometimes within ethnic groups of the same culture, core elements of the disorder have been highly consistent across cultures (Westermeyer, 1985).

Mental health is a critical and necessary component of comprehensive health care services for all people according to Stuart and Sundeen (1987). Provision of health care services to the 1.2 million people in the United States currently diagnosed as schizophrenic is thus among the first priorities of professional nursing. As one of the four core mental health disciplines, nursing is involved in the care of schizophrenic clients in all phases of the illness and in all types of treatment settings. The total annual cost of state

psychiatric hospitals was \$4.5 billion in 1983 (Torrey, 1988). Estimates of the nationwide annual cost of schizophrenia in the United States range from \$18 billion in 1982 to \$36 billion in 1986 and projected costs in the year 2000 to several times the latter (Torrey, 1988). As an illness with its onset in late adolescence and early young adulthood, schizophrenia has economic and human costs that also need to include raising and educating the individual through childhood and adolescence to the time they are expected to begin contributing economically to society, but instead become disabled by their illness. Having an early age of onset, schizophrenia requires for those with chronic mental illness long years of costly service from society with little economic contribution from clients in return (Torrey, 1988). Also, as Torrey notes, "Anyone who has a family member with schizophrenia knows that its magnitude and tragedy are light-years beyond calculation in dollars and cents" (1988, p. 10).

Recovery in Schizophrenia

Recovery in reference to mental health disorders is defined by Abramson et al. (1989) as the remission or end of a given episode of illness. In reference to schizophrenia this implies an improvement in the individual's symptoms, social activity, employment and overall functioning, as well as an absence of hospitalization for psychiatric illness. Studies that include reference to recovery in schizophrenia have often been research studies on outcome at various time intervals after the client's index, or first, hospitalization. The

questions being investigated have included: what percentage of clients, if any, have sustained recovery; does this vary with follow-up interval in relation to index hospitalization; and does this vary with apparent degree of chronicity of schizophrenic disorder.

Carone, Harrow, and Westermeyer (1991), in a prospective follow-up study with 79 early phase, young schizophrenics, assessed clients at two post-hospital intervals, two and one-half years and five years after index hospital admission, to determine post-hospital course, outcome, and percentage showing complete remission. In this data from the Chicago Follow-up Study 59% of the sample had either one or no previous hospital admissions prior to the index hospitalization. However, no significant differences in outcome at follow-up were noted between those clients who were first admission versus those with multiple admissions. Mean age at index hospitalization for the clients was 23.1 years. Post-hospital course and outcome were measured via structured interviews with the use of various questionnaires and scales including the Levenstein, Klein, and Pollack Scale and the Strauss-Carpenter Level of Function Scale. Over 50% of the sample had poor overall outcome, with only 10% of the sample recovered at two and one-half years and 17% at five years. Carone et al. concluded that during early phases of the illness schizophrenic clients do not inevitably demonstrate a downhill course, but there are major problems in adjustment

for many, and complete and sustained remission is found in only a small subsample.

Another early phase prospective study comes from the National Institute of Mental Health. Breier, Schreiber, Dyer, and Pickar (1991) reported on a longitudinal study of 58 young chronic schizophrenics followed-up 2 to 12 years (mean=6 years) after NIMH index hospitalization. The sample at index hospitalization had an average of five prior psychiatric hospitalizations. Mean age at follow-up was 32 years and average length of illness 13 years. Four assessment instruments were utilized in an interview format, including the Brief Psychiatric Rating Scale, Scale for Assessment of Negative Symptoms, Strauss-Carpenter Level of Function Scale, and Global Assessment Scale (GAS). Breier et al. found substantial levels of symptoms and functional impairment in the sample, with only 21% demonstrating good overall outcome averaged across instruments and 78% having experienced a relapse during the follow-up period. Only 3% had good outcome using the GAS. Breier et al. noted that their data suggested that symptom levels do not stabilize or decrease soon after onset of schizophrenia, but may continue to increase throughout the first 10 years or more of illness. A three phase course of illness was hypothesized: early phase marked by deteriorating course, middle phase characterized by a plateau with more stability, and later phase including gradual improvement.

Longer-term outcome studies have assessed recovery at periods of 10 to 15 years after index hospitalization. Fenton and McGlashan (1987) studied sustained remission in 23 schizophrenic clients followed-up an average of 15 years after index admission at Chestnut Lodge during the period 1950-1975. The sample was characterized as largely chronic, all having been hospitalized an average of three times previously. Follow-up outcome was assessed via interviews with subjects and/or significant others. The 23 clients in sustained remission formed 14% of the total 163 subjects diagnosed as schizophrenic in the follow-up study; this 14% had sustained good outcome without maintenance anti-psychotic medication over the follow-up period. Distinguishing characteristics of the group at index admission included better social and occupational adjustment prior to illness, higher levels of psychosocial competence and acquired skills, fewer hebephrenic traits, and more depressed mood.

Vaillant (1978) in a ten-year follow-up through Massachusetts Mental Health Center of what were termed "remitting schizophrenics" also described heterogeneity of outcome. Fifty-one patients were followed through hospital records or interview for 4 to 16 years (mean=10 years), having been identified as in remission at the beginning of the study period. Of these 51, 20 experienced chronic relapses and all but 5 had at least two subsequent hospitalizations during follow-up. Of the 31 who stayed in remission only 2 experienced brief psychiatric rehospitalization. Twenty-one

of these 31 clients were interviewed at 10 year follow-up, and had maintained social independence and employment, were not taking phenothiazines, and demonstrated sustained recovery. Vaillant stated that those 20 who demonstrated chronic mental illness at ten-year follow-up looked very similar on first hospital admission to the 31 who stayed better.

Retrospective studies were also noted in the literature. Engelhardt et al. (1982) utilized psychiatric hospital and state department of mental hygiene records to retrospectively follow a cohort of 646 patients diagnosed as schizophrenic between 1958 and 1963. The purpose of the study was to trace hospitalization history 15 years after index admission to a mental health outpatient setting. Mean age at outpatient admission was 30.4 years and at follow-up 45 years. Twenty-one of the cohort had no previous history of psychiatric hospitalization prior to outpatient care. At follow-up 58.8% of patients had been hospitalized at least once for psychiatric illness, 63% of those having hospitalization occur by the end of the second year of follow-up, 84.7% by the end of the fifth year, and 90% by the end of the seventh year. Approximately 41.2% of the total cohort were not hospitalized for psychiatric illness in the 15 years. In addition, 38% of the cohort in the most-hospitalized group prior to clinic admission had no major psychiatric hospitalization in the course of the following 15 years. Engelhardt et al. suggested that the data pattern of their study did not support the view of schizophrenia as a disease of slow, progressive

deterioration. Rather it was consistent with the findings of other long-term studies which show a relatively favorable long-term course for schizophrenic patients.

Long-term studies have assessed clients with schizophrenia over a period of 30 to 40 years after index hospital admission. Tsuang, Woolson, and Fleming (1979) in a long-term study of schizophrenia, affective disorders, and psychiatrically symptom-free surgical conditions described a sample of 186 schizophrenic subjects. The study comprised a 30-40 year field follow-up of 685 subjects originally admitted to the University of Iowa Psychiatric Hospital or general hospitals between 1934-1944 and 1938-1948, respectively. Long-term outcome was analyzed in terms of marital, residential, occupational, and psychiatric status. Past medical records and current interviews with 85% of the schizophrenic subjects as well as one first-degree relative formed the basis for the diagnostic and outcome ratings. Of the 186 patients diagnosed as schizophrenic, the rating of "good" was used for 21% in the area of marital status, 34% in residential status, 35% in occupational status, and 20% in regard to psychiatric status. Ratings were based on a three-point scale developed and defined by the authors with levels of poor, fair, or good in each of the four areas.

Another follow-up study used a sample of 82 patients diagnosed as schizophrenic. Harding, Brooks, et al. (1987) in a 32-year prospective follow-along study from Vermont State Hospital reported wide variety of outcome. Data were

collected through interviews with subjects and with informants who knew the subjects well. Ratings were based on the use of several scales including the Brief Psychiatric Rating Scale, GAS, and Strauss-Carpenter Level of Function Scale. Subjects in the study had been released from the hospital in a planned deinstitutionalization program in the mid to late 1950's. Forty-five percent had been hospitalized for 6 years, 24% for two to six years, and 31% less than two years prior to the planned program. Mean age at follow-up in 1981 was 61 years. Results of the study indicated that for one half to two thirds of the subjects long-term outcome was not marginal nor downward. Sixty-eight percent of subjects did not display any further signs or symptoms of schizophrenia at follow-up, and 45% displayed no psychiatric symptoms at all. Fifty percent of the cohort were using no psychotropic medication although 84% had medications prescribed.

Study Variables

Having defined and described the topic of schizophrenia and reviewed both short and long-term studies of outcome and recovery, the next sections of this chapter will focus on the variables in the study. These include the constructs of health locus of control, perceived self-efficacy, and hardiness.

Health Locus of Control

Health locus of control is defined as a belief about control of the outcomes of behavior in a situation related to health, ranging on a continuum of control by external forces--

luck, fate, chance, or powerful others--to control being entirely contingent upon one's own behavior. Beliefs at the former end of the continuum are labeled as an external health locus of control and beliefs at the latter end as internal health locus of control (Rotter, 1975; Wallston & Wallston, 1982).

Studies specific to populations of psychiatric clients and locus of control or health locus of control have included several focusing on schizophrenia. Levenson (1973) reported on a sample of 165 clients at admission to a state hospital and then on half of these prior to discharge. Included were schizophrenic clients, those with depression, and others described as neurotics. Both Rotter's (1966) Internal-External (I-E) Locus of Control Scale and Levenson's own Multidimensional Locus of Control Scale were used. Testing within five days of admission indicated that patients perceived significantly more control by chance and powerful others than a previously tested normal sample. Those with psychosis scored significantly higher in both dimensions than did those termed neurotic. Although there were no significant differences in internal and chance scale scores on the Levenson scale between voluntary and involuntary patients, involuntary patients believed significantly more in powerful other control than did voluntary patients. During the first month of hospitalization patients gained in internal belief, but initial scores were not significantly different from those just before discharge when gain in internal scores decreased.

The nature of vulnerability to schizophrenia was the focus of a study by Jenkins (1988) who assessed locus of control as one of four variables. With a convenience sample of 40 subjects, the study measured perception of control over the disease process as expressed on Paulhus' Three-Sphere Locus of Control (LOC) Scale. The hypothesis that internal locus of control would be associated with higher stage of ego development as measured by Loevinger's Sentence Completion Test was not supported. However, Jenkins reported that the person less vulnerable for schizophrenia will demonstrate a score in the internal direction on the Three-Sphere LOC Scale. One limitation to the study may have been small sample size.

Bergman (1985) investigated the relationship of locus of control, level of anxiety, and reinforcement value to the community adjustment of chronic schizophrenics. A subproblem was to determine the degree of internality of such an outpatient client group. The sample of 112 subjects met Cohen's power analysis requirements for medium effect size, power=.80, and alpha=.05. Utilizing Rotter's (1966) I-E Scale, results confirmed that there is a statistically significant relationship between internal LOC and readjustment. The mean LOC score of 10.7 also indicated that the sample was highly external in comparison to a non-psychiatric patient population, with higher scores on the I-E Scale indicating externality. A possible limitation noted in the study was the use of the I-E Scale, a more unidimensional

measure of LOC, rather than the Multidimensional Health Locus of Control Scale.

A sample of 42 clients randomly selected from the caseload of a community mental health center formed another study population. Warner et al. (1989) included schizophrenic clients, those with bipolar disorder, and those with schizoaffective disorder. Four of the subjects were in long-term care at the state hospital, and 41 of the total had been in psychiatric treatment for at least five years. The Reid-Ware Three-Factor Internal-External Scale was used to measure LOC. Results indicated that psychiatric diagnosis was unrelated to LOC. A more external LOC was related to worse relative functioning as measured by five scales of the Colorado Client Assessment Record after controlling for effects of other variables in the model: acceptance of the mental illness label, stigma, and self-esteem. Findings suggested that both acceptance of illness and an internal LOC were necessary for good functioning in psychosis.

A sense of control as seen from the perspective of attribution theory has also been investigated in individuals with schizophrenia. Fetter and Lowery (1992) examined causal attributions for readmission to the hospital of 120 voluntary patients with a diagnosis of schizophrenia and compared these to the attributions by 162 staff for the event of readmission for those patients. An attributions interview schedule designed by the investigators was utilized for data collection. Two methods of coding the responses were used:

dimensions of internality, stability, and controllability; and nominal categories of causes determined by a panel of experts in the care of patients with schizophrenia. Attributions made by patients for readmission tended to be internal, stable, and uncontrollable (72%); approximately 51% attributed the nominal cause to something about their illness. Only 17% of staff attributed patient readmission to the patient's illness; 50% of staff identified non-compliance as the nominal cause, thus identifying the cause as internal and controllable by the patient.

Two other studies with non-schizophrenic clients focused on psychiatric patient populations. Hoffart and Martinsen (1990) in a descriptive study completed in Norway compared clients with agoraphobia, depression, and the presence of both disorders on mental health LOC and attributional style. Utilizing the Multidimensional Health Locus of Control (MHLC) Scale and the Attributional Style Questionnaire, the study assessed 113 subjects from an inpatient sample. Results indicated the only significant finding on MHLC to be that agoraphobic clients and those with both disorders externalized mental health LOC to chance more so than did depressed subjects. All subjects had similar powerful other HLC scores, with means ranging from 21 to 21.95, and internal HLC mean scores ranging from 20.52 to 22.52. In completing the MHLC Scale, subjects were instructed to consider illness as their actual mental health disorder.

Huckstadt (1987) assessed locus of control in a sample of male alcoholics, recovering alcoholics, and non-alcoholics. The 22 alcoholics and 22 recovering alcoholics were volunteers recruited from Alcoholics Anonymous; 22 non-alcoholics were volunteers from a YMCA center located in the same geographic area as one of the AA groups. Both alcoholics and recovering alcoholics indicated chronic problems, with a mean of 14 years of alcohol-related problems for the former and 12 years for the latter group. The Drinking-Related LOC Scale was used as a specific measure for this population. High scores indicated external control and low scores internal control, with a possible range from 0-25. Mean score for alcoholics was 6.41 \pm 4.08, for recovering alcoholics 5.41 \pm 3.69, and for non-alcoholics 2.55 \pm 2.22. The alcoholic group was significantly more external in LOC orientation than the non-alcoholic group. One confounding factor in the study may have been a significant difference in educational level among the groups; alcoholics had a mean of 11.6 years of education, recovering alcoholics 13.2 years, and non-alcoholics 15.7 years.

Qualitative studies with mental health clients.

Information from qualitative studies of clients with mental health disorders also affords data about a sense of control. Breier and Strauss (1983), in a follow-up study of 20 psychiatric patients with diagnoses of schizophrenia, schizoaffective disorder, or major affective disorder, studied how interactions between the individual and environment affect the course of psychiatric disorder. All subjects had been

hospitalized and were followed during hospitalization and for one year after, at two month intervals. Subjects were asked if they could control their symptoms, and if so, which they tried to control, and how they attempted to do so. Patients reported a three-phase process: first, detection of an unwanted behavior or its antecedent; second, evaluation of such behavior as a warning signal of abnormality; and, last, use of some control strategy. Subjects also noted certain instances when control mechanisms did not work. One confounding factor in the study may have been its inclusion criteria requiring that subjects had worked in a paying job during the year prior to hospitalization; this eliminated the least functional clients from the study.

Utilizing basically the same study population but with several added subjects, Rakfeldt and Strauss (1989) reported data on 28 patients at two years as well as one year of intensive follow-up. From sequential interviews, Rakfeldt and Strauss described a process termed the low turning point, an experience used by clients either consciously or unconsciously to realign important components of their lives. The process was described as involving three phases: (a) an initial rigid focus on only one way of dealing with life; followed by (b), relinquishing that focus and decompensation; leading to (c), a reorganization and more varied modes of dealing with life situations. Functioning that emerged from this experience often seemed to be more adaptive than the individual's functioning before decompensation.

In a study of 62 outpatients with diagnoses of chronic schizophrenia and schizoaffective disorder the use of control mechanisms was also investigated by McCandless-Glimcher et al. (1986). In a structured interview which contained a symptom checklist and additional open-ended questions, 98% of clients said they could tell when they were getting worse. Eighty-two percent of those who identified symptoms of problems said they altered their behavior in response, using such strategies as self-medication, use of diversionary activity, trying to ignore the symptoms, and seeking mental health assistance. One or a combination of several of these strategies may have been used by the clients.

Health locus of control and physical illness.

Numerous studies have utilized health locus of control as a variable in relation to chronic physical illness. Ellis (1991) utilized the Multidimensional Health Locus of Control (MHLC) Scale in a study designed to expand understanding of perceived control, its relationship to perceived health and health behavior, and the development of personal control in persons with rheumatoid arthritis. In the sample of 67 subjects, a significant positive relationship emerged between perceived health status and internal HLC and a significant negative relationship between perceived health status and chance HLC. Health behavior was also negatively related to chance HLC. Negative chance HLC emerged as the major significant predictor of both health behavior and perceived health status in stepwise multiple regression.

Another chronic physical problem investigated was chronic obstructive pulmonary disease (COPD). The MHLC Scale was utilized by Johnson (1989) in a study with a convenience sample of 30 patients on an inpatient respiratory unit. The study was designed to assess the relationship among the variables of disease related knowledge, MHLC, and compliance with treatment. No data on power analysis for the study were provided. Results indicated that 33% of the sample held an internal HLC orientation, 50% a powerful other orientation, and 16% a chance HLC orientation. MHLC had no effect on the amount of COPD-related knowledge or level of treatment compliance. One reason for lack of significance in findings may be the small sample size and inadequate power.

An early study of the sense of control in health and illness by Seeman and Seeman (1983) utilized a representative metropolitan sample of adults as subjects over a year-long longitudinal study. Nine hundred and thirty-one respondents participated in the study, which included interviews at the start and close of the study period, with six-week call-back intervals to trace health-related incidents. Wallston et al.'s (1978) Health Locus of Control Scale was the measure of sense of control. The scale was used at the first call-back on which no illness had occurred during the previous six to eight weeks. A sense of low control was significantly related to less self-initiated preventive care, less optimism about the efficacy of early treatment, poorer self-rated health, and more illness episodes.

Whether individuals who believe in internal HLC progress to a greater degree in rehabilitation therapy than those who do not hold this orientation, was the research question investigated by Norman and Norman (1991). In an exploratory study of 93 subjects, patients admitted to a mid-western rehabilitation facility were interviewed within five days of admission to assess health locus of control beliefs, perception of health status, and perception of the value of health. Progress in therapy was measured by a classification system utilized in the facility to assess level of functioning in various areas pertinent to rehabilitation, such as pain management, mobility, emotional adjustment, etc. Results on the MHLC Scale indicated that subjects who held an internal HLC belief made significantly greater progress in rehabilitation than did those with chance HLC or powerful other HLC beliefs. Chi square analysis indicated no significant progress for either of the latter groups, but up to 80% progress for 60.2% of the internally oriented clients and 100% progress for 44% of such clients. Mean scores on the three MHLC subscales were: internal HLC 27.2 \pm 5, chance HLC 18.03 \pm 5.8, and powerful other HLC 20.91 \pm 7. Fifty percent of the internal HLC group also rated health as their primary value.

Authors of intervention studies have also assessed ways to modify an individual's HLC belief. Pender (1985) assessed the effects of progressive muscle relaxation training on anxiety and health locus of control among clients in a

hypertension-monitoring program in a midwestern county health department. Two matched groups of 22 clients served as the treatment and the control groups. The treatment group received relaxation training in a series of six weekly group sessions followed by individual monitoring, and the control group received blood pressure monitoring, weight checks, and health counseling over the six weeks. After training, at four month follow-up, the relaxation group scored significantly higher on the MHLC Scale internal subscale than the control group. The relaxation group also showed a significant increase from 54.82 \pm 7 to 58.55 \pm 7 (utilizing the long form of the MHLC Scale) in mean internal LOC score while the control group did not. Mean scores on the powerful other LOC subscale remained stable in both groups over the study period. Clients given relaxation training also exhibited a significantly lower mean chance HLC score at follow-up than the control group, and demonstrated a significant decrease in chance subscale scores while controls did not.

Health locus of control has also been monitored in clients with chronic renal disease undergoing hemodialysis. In a study measuring the relationship between dietary adherence and health beliefs, health locus of control, and health valuing among 30 volunteer clients who had been dialyzed for at least ten months, Bollin and Hart (1982) found that two-thirds of their sample had an external HLC orientation. The mean scores of externals were lower in all categories of compliance, internally oriented clients being

more compliant with dietary restrictions and rules than externals. No data on power analysis and no HLC score values were included. Bollin and Hart noted that the external orientation of the majority of the clients may serve a self-protective function as well as reflect the reality of the client's situation in depending on health care professionals.

Perceived Self-efficacy

Perceived self-efficacy is defined as a belief about one's capability or lack of capability to perform a certain behavior to reach a particular goal. Generalized beliefs about personal competence are termed a sense of 'personal efficacy', while more situation-specific beliefs are termed 'self-efficacy' expectations (Bandura, 1977; Maddux, 1988). In reference to schizophrenia, Connelly and Dilonardo (1993) have described self-efficacy as an aspect of self essential to self-care behaviors; perceptions of self-efficacy are also seen as influencing whether individuals with schizophrenia believe they can achieve mastery over symptoms of their illness.

Research conducted specifically on self-efficacy in individuals with schizophrenia has focused on intervention strategies in day treatment programs or work-related social skills programs. Brown (1987) used videotape feedback on films produced by clients themselves as a self-confrontation strategy to enhance self-efficacy in day treatment. Members of an experimental group were taught to use videotape equipment to film program activities while the control group,

matched for diagnosis and treatment center, had no access to the video equipment. The research hypothesis that severely disturbed clients in the experimental group would experience increased self-efficacy on seeing themselves as others saw them was supported. Case reviews done by treatment center staff were the measure of self-efficacy. Staff noted significant improvement in general level of functioning, grooming, and overall self-efficacy in the experimental group, but only strong trends toward improvement in several symptom-related areas. Brown suggested better integration of feedback for the experimental group into the treatment process to increase intervention effectiveness.

Phillips (1986) utilized a photography group for clients in day treatment as a format for teaching a concrete skill and enhancing self-efficacy expectations through mastery experiences. In addition the group provided a forum for discussion of individual client's problems as assessed through the use of a non-verbal medium, e.g. one client consistently photographed other people's backs rather than taking facial photographs. This behavior was then discussed by the group. No objective measures of self-efficacy were described in the project.

A three-group experimental study by Portelunas-Campbell (1982) involved 45 female schizophrenic clients in an outpatient work adjustment program. Using a social skills training module, the study's aim was to increase social competence, self-efficacy expectations, and nonverbal

assertiveness skills in work settings. Portelunas-Campbell matched clients on the basis of age, years of education, months of employment, number of hospitalizations, and duration of hospitalization, and randomly assigned them to groups. Clients in the experimental group had exposure to four one-hour sessions of videotape situations, modeling, behavioral rehearsal, coaching, and feedback. The discussion group had exposure to four one-hour sessions of the videotape situations and discussion, and the control group had neither. In the pre-test post-test design the experimental group significantly improved scores on self-efficacy expectations as well as the other dependent variables. Self-report of efficacy expectations in regard to specific work problem situations was the measure of client change.

Family members who care for schizophrenic relatives have also been the focus of self-efficacy research. Abramowitz and Coursey (1989) measured the sense of self-efficacy of family members in a pre-test post-test design prior to and after participation in an educational support group. The researchers obtained a matched group of 24 persons on the waiting list for the educational support sessions, as a control, to assess the effect of sessions on the 24 members of the caretakers' group. Family members were all recruited through local community mental health centers. Trait anxiety, personal stress and life upset, use of community resources, and generalized self-efficacy were measured. No significant difference was found on the measure of self-efficacy although

significant changes were found in the other areas. Since self-reports also indicated feelings of increased effectiveness in members of the caretakers' group, the investigators attributed the lack of significance to the general nature of the self-efficacy measure, which assessed personality trait rather than responses to specific situational difficulties.

Other types of mental health disorders have also been investigated in relation to self-efficacy. Kavanaugh and Wilson (1989) tested a social-cognitive model of depressive episodes and their treatment within a predictive study of a volunteer sample of 42 clinically depressed adults, with mean age of 40.1 years. Subjects were given self-efficacy questionnaires, self-monitoring and self-control measures, and the Beck Depression Inventory (BDI) to assess depression before and after cognitive group therapy. Results indicated that self-efficacy and skills regarding control of negative cognition mediated a sustained response to treatment. In follow-up post-treatment over the next 12 months, the self-efficacy measure also discriminated those subjects who relapsed.

In another study with depressed clients the BDI and self-efficacy measures plus self-monitoring scale were utilized as outcome measures to assess cognitive behavioral treatment effectiveness. Usaf and Kavanaugh (1990) compared a group of 19 clients who received treatment with an age-matched group of 24 subjects on the waiting list for cognitive therapy.

Findings indicated that increases in level of perceived self-efficacy and self-monitored performance of skills targeted for change in the treatment group were closely associated with improved BDI scores. A self-efficacy measure regarding assertion also predicted depressive scores over 12-week follow-up.

Phobias have been a primary area of research in regard to self-efficacy. Williams et al. (1989) completed recent research with agoraphobic clients in which each client was given brief performance-based treatment in some phobic areas, while other phobias were left untreated. A volunteer sample of 22 females and 5 males with mean age of 43 years had been agoraphobic for an average of 14 years; all but one also had a history of panic attacks. Subjects also tended to be moderately to severely depressed as assessed by Beck Depression Inventory. Self-efficacy was measured by pre and post-treatment measures on a set of agoraphobic self-efficacy scales and objective measures of behavioral disability in nine agoraphobic areas. Self-efficacy accurately predicted treatment effects and transfer effects to other phobias; subjects experienced enduring, generalized improvements in phobias that were untreated as well as in those treated. Transfer phobias improved significantly less than treated phobias, and great change might occur in one transfer phobia, but no change occur in another. Self-efficacy accurately predicted outcome even when perceived danger, anticipated anxiety, or anticipated panic were held constant. The

researchers supported the view that fear and danger anticipated by the client are not the cause of phobias, but are dependent effects of low self-efficacy. Williams et al. stated that results of this study support the view that agoraphobia is maintained by low perceptions of self-efficacy, and treatment alleviates specific dysfunctions by enhancing the client's perception of self-efficacy for those dysfunctions.

Two studies in the literature assessed self-efficacy in relation to bulimia. In a descriptive study Etringer, Altmaier, and Bowers (1989) compared 18 female college undergraduates with bulimia to 23 without the eating disorder on variables related to cognitive and behavioral coping, and self-efficacy. The individuals with bulimia were found to have a lower sense of personal efficacy in successful performance of life tasks and lower self-appraised problem-solving ability than the non-bulimics. Another area assessed was level of dietary restraint, in which bulimic subjects indicated higher levels of self-efficacy than non-bulimics.

Schneider, O'Leary and Agras (1987) examined self-efficacy in recovery from bulimia. The study of 14 females assessed the relationship between change in purging behavior with cognitive-behavioral treatment and enhancement of perceived self-regulatory efficacy for several efficacy domains. A Self-Efficacy Questionnaire developed by the researchers assessed seven domains relevant to recovery from bulimia. Results indicated enhanced perceived self-efficacy

in several areas after treatment: refraining from binge eating in various situations and mood states, using stimulus-control techniques and alternative activities, and developing satisfactory social relationships. Prospective analysis by Schneider et al. noted a nearly significant correspondence between self-efficacy predictions for controlling bulimic behavior in various moods and subsequent binge eating in those moods.

The theory of self-efficacy has been utilized in the field of addictive behaviors, specifically in regard to work with alcoholics. Burling, Reilly, Moltzen, and Ziff (1989) assessed self-efficacy and relapse among 419 male inpatient drug and alcohol abusers on admission, during residential treatment, and for a subsample of 81 of these subjects, six months after discharge. Findings indicated that self-efficacy increased during treatment and was higher among abstainers than relapsers at follow-up. However, low self-efficacy at intake was related to longer inpatient residence and more positive condition at discharge. Those who were abstinent initially had slightly lower self-efficacy scores at intake than did relapsers, possibly reflecting less denial and a more realistic view of the difficulty of not drinking, according to the researchers. Those who were abstainers at follow-up increased their self-efficacy ratings two-fold over relapsers during treatment.

Self-efficacy and physical illness.

Nursing research in chronic physical illness has also utilized the concept of self-efficacy. Wassem (1989) investigated whether the constructs of self-efficacy and outcome expectations predicted the behavior of adjustment to chronic disability. A sample of 178 subjects with diagnoses of multiple sclerosis, arthritis, or cardiac disease was obtained from outpatient sites and support groups. The Self-Efficacy for Adjustment Behaviors, Bell Disability Scale of Adjustment, Outcome Expectancy Scale, and a demographic data form were the four instruments used in the study. Support group membership and medical diagnosis were used as control variables. Results demonstrated that self-efficacy was a better predictor of adjustment to chronic disability than outcome expectations, and self-efficacy in combination with selected demographic variables and outcome expectations significantly increased explained variance in adjustment. One limitation noted in the study was the possible lack of validity and refinement of the Bell Disability Scale of Adjustment.

Nursing interventions based on self-efficacy theory were used in a study by Gortner et al. (1988) to enhance individual and family health during recovery from cardiac surgery. Family stress theory was also a basis of the study. A sample of 67 first-time bypass and valve surgery patients and their spouses was followed prospectively during hospitalization and for follow-up at 3 and 6 months post-surgery. Subjects were

randomly assigned to experimental interventions or the control group with usual care; experimental interventions were based on the hypothesis that pervasive recovery information and coaching by telephone would hasten post-surgical rehabilitation. Both groups and spouses were shown the American Heart Association slide/tape teaching program. In addition the experimental group also was shown an experimental educational slide/tape followed by a counseling session, plus follow-up telephone calls over three months by masters' or doctorally prepared nurses for teaching, coaching, and health problem resolution. Self-efficacy measures were those in the Stanford Cardiac Rehabilitation program relating to physical activity, exercise, and modifying stress. The hypothesis that the experimental group would show hastened recovery at six month follow-up was not supported. No significant differences were found on self-report, self-efficacy, and realized benefits for the experimental versus control group. Pre-operative cardiac status, age, and gender did appear to influence individual recovery. Experimental nursing interventions also did not significantly hasten family recovery post-surgery. Limitations noted in the study which may have influenced findings were (a), small sample size; power analysis for $\alpha=.05$ and $\text{power}=.80$ for medium effect size indicated a required sample of 200; (b), interventions may have been insufficient in intensity and duration; and (c), the appraisal schedule of 3 and 6 months may have been too late to evaluate individual recovery.

Hardiness

Hardiness is defined as a personality characteristic made up of three elements: (a) a belief that one can control or influence events in one's life experience; (b) the ability to feel committed to activities such as work, family, community, and personal goals; and (c) the anticipation of change as challenge rather than threat (Kobasa, 1979, 1982). Health-related hardiness refers to the presence of this characteristic in individuals with actual health problems. The commitment/challenge elements of hardiness are seen as closely related in a health-specific context, and "commitment to adjusting to a health stressor (chronic illness) is also the challenge" (Pollock & Duffy, 1990, p. 221).

The author of the original research identifying the concept of hardiness studied personality retrospectively as a conditioner of the effects of stressful life events on the onset of illness. Kobasa (1979) obtained a sample of male middle and upper level executives in a large public utility company who responded to a set of mailed questionnaires; these included an inventory of stressful life events and illness episodes experienced in the previous three years. Based on responses to the questionnaires from a total of 837 executives in the preliminary pool of subjects, two extreme groups were defined: high stress/low illness and high stress/high illness. From a possible 116 high stress/low illness subjects, 86 were randomly selected, and from the high stress/high illness group, 75 from a possible 150 were

randomly selected. A composite questionnaire made up of portions or all of four standardized questionnaires and two newly constructed instruments was then utilized to test differences in personality characteristics between these two groups. Results of discriminant function analysis supported the prediction that high stress/low illness individuals demonstrated more hardiness than the high stress/high illness persons; that is, the former had a stronger sense of commitment to self, a sense of meaningfulness in their lives, an attitude of vigorousness rather than vegetativeness, and an internal locus of control.

Hardiness in individuals with psychiatric disorders.

The presence of hardiness in individuals with psychiatric disorders has been specifically addressed in regard to depression. Ryger (1989) investigated whether there were differences between recovered inpatient and outpatient depressed women in regard to life events, social support, and coping styles prior to the onset of depression. The sample of 30 inpatients and 30 outpatients was similar on level of education, IQ, race, religion, percent married, and number of children. Outpatient clients, with a mean age of 45.9 years, had begun treatment for depression 10 years previously, and inpatient clients, with a mean age of 36.6 years, had initiated treatment 5 years previously. The Hamilton Depression Scale was used to measure level of depression for inclusion in the study and to indicate recovery. The 71-item Hardiness Scale was one of two instruments administered at

recovery to assess differences in the two groups on coping style. Results indicated no significant differences on the Hardiness Scale or the other measure of coping. Inpatient women did experience significantly more stressful life events in the year prior to the onset of depression, and also reported a larger social network. There were no significant differences between groups on subscale scores of the Hardiness Scale in reference to control, commitment, or challenge.

Subjective experiences of psychiatric clients that seem to connote hardiness have been expressed in qualitative studies and self-reports. Deegan (1988) in her autobiographical description of recovery from schizophrenia traced the experience as she accepted and overcame the 'challenge of disability'. She described the importance of rebuilding her life one day at a time amid multiple setbacks, and using hope, a sense of willingness, and responsible action to do so. This description of recovery contained elements of commitment, control, and challenge, as did Deegan's (1988) statement that recovery is a process, a way of life, and an attitude.

Strauss (1989), in a theoretical paper based on data gathered from qualitative interviews with clients diagnosed as schizophrenic or having other psychoses, identified a key phenomenon expressed in subjective experiences as the importance of the interaction between the person and the disorder. According to Strauss, this interaction evolved over time, and it specifically involved the person as a goal-

directed being whose feelings helped to drive the phases of relapse/disorder and improvement. Clients described regulatory mechanisms used to deal with and control various aspects of their disorder. First person accounts of clients' experience with schizophrenia, as described by Hatfield (1989), also indicated specific coping strategies clients used to control distressing symptoms. These reports again implied a sense of commitment or goals, a feeling of some control, and the acceptance of the challenge of attempting to manage and live with their illness.

Hardiness and physical illness.

Hardiness in clients with chronic physical illness has been investigated in relation to a variety of problems. Pollock et al. (1990) compared 211 adults on psychological and physiological adaptation across three diagnostic categories: 42 with rheumatoid arthritis, 44 with hypertension, and 126 with multiple sclerosis. All were recruited from physicians' practices or community groups such as National Multiple Sclerosis Society chapters. Mean age was 43.2 years, and over 60% of the subjects had a history of illness for 6 years or longer. The groups were not significantly different on demographic characteristics; the majority were described as major or minor professionals in reference to socioeconomic status (SES). Instruments used in the study were the Mental Health Index, 51-item Health-Related Hardiness Scale (HRHS), Margin in Life Scale, and scales developed by the researchers containing measures of physiologic function specific to the

three illnesses. Results indicated that physiologic adaptation was significantly different among the three diagnostic groups, but psychosocial adaptation did not differ. Mean total hardiness score for the entire sample was 93.87 ± 22.87 with low scores indicating the presence of hardiness. Of the major variables only hardiness was related to both physiological and psychological adaptation. In addition, the presence of hardiness was significantly related to involvement in health promotion activities and participation in patient education programs.

A smaller sample of clients with similar chronic illnesses was the focus of another study by Pollock (1986). Three groups of 20 clients each, with diagnoses of hypertension, rheumatoid arthritis, and diabetes mellitus participated in the study over a period of nine months. The major hypothesis was that those clients demonstrating the presence of hardiness would exhibit more adaptive behavior than those without the characteristic. A majority of subjects--88%--were employed outside the home, and in the previous year 60% of these missed no time from work. The 48-item Health-Related Hardiness Scale, Psychosocial Adjustment to Illness Survey, demographic data forms, and physiologic adaptation to illness scales specific to each diagnosis were instruments used in the study. Findings indicated that the presence of hardiness was significantly related to psychosocial adaptation for the total sample but not significantly related to physiologic adaptation. Low scores

on the HRHS indicated the presence of hardiness, but z scores were used for this sample. The presence of hardiness was significantly correlated with physiologic adaptation for the diabetic and the hypertensive groups, but not for the rheumatoid arthritis group. Hardiness was correlated with psychosocial adaptation in only the diabetic group. A limitation noted in the study was the small sample size per diagnostic category.

Two other studies have focused on hardiness in persons with rheumatoid arthritis. Lambert et al. (1989) in an exploratory study investigated whether or not social support and hardiness were predictors of psychological well-being in a sample of 122 women who were clients in an outpatient rheumatology clinic. Mean age was 57, mean years of illness 15.5, and mean years of education 14. Approximately half of the sample were housewives. Instruments used in the study were the Mental Health Index, a 27-item Social Support Questionnaire, the 36-item Hardiness Questionnaire, and the Keitel Functional Test to assess seriousness of illness. Severity of illness was then used as a control variable. Results demonstrated that both satisfaction with social support and hardiness were significant predictors of psychological well-being regardless of severity of illness.

Another exploratory study examined the relationship among hardiness and its components and demographic variables, objective health, disability, and perceived health. A sample of 33 female clients at an arthritis clinic participated in

the study by Okun, Zautra, and Robinson (1988). Instruments included measures of disability, perceived health, demographic data forms, and the 50-item Personal Views Survey to assess hardiness. In the study's findings hardiness was significantly correlated with being employed, with both control and commitment subscales also demonstrating this association. The same two subscales also showed a significant correlation to age, but hardiness and its components did not covary with formal education or marital status. The control subscale was also positively correlated with average perceived health compared to one's same age peers. One limitation of the study may have been small sample size and inadequate power.

Patients with chronic renal disease were the subjects in a study assessing the relationship between hardiness and psychosocial adjustment in hemodialysis clients. Goodwin (1988) used the Psychosocial Adjustment to Illness Scale, 48-item Health-Related Hardiness Scale, and a demographic questionnaire with a sample of 35 subjects. Mean age of the outpatient sample was 55.4. Findings indicated that hardiness was significantly related to years of dialysis and hours per treatment; those individuals dialyzed for more years were less hardy. Total HRHS mean score was 146.6 ± 19.5 with highest possible score = 288 and range of 117-199; low scores indicated the presence of hardiness. Mean subscale scores for the sample were: control 60.5 ± 9.7 ; commitment 35.9 ± 10.0 ; and challenge 50.1 ± 7.8 . The hypothesis that hemodialysis

clients with higher levels of hardiness would show better psychosocial adaptation was not supported. On HRHS subscale components more commitment was correlated with fewer psychosocial family adjustment problems, and control correlated with more psychological distress. The researcher noted a number of limitations, including the effects of fatigue and the dialysis treatment itself, plus some difficulty with wording of concepts on the HRHS.

Another type of chronic illness explored in relation to hardiness has been chronic obstructive pulmonary disease (COPD). Narsavage (1990) conceptualized hardiness and coping strategies as mediating variables between physiological status and patient outcomes in a descriptive study of 104 adult outpatients with COPD. Mean age of the sample was 65.5 years. Sample size met power analysis requirements for medium effect size, $\alpha = .05$, and power = .80. Four measures utilized in the study were the 40-item Health-Related Hardiness Scale, Ways of Coping Questionnaire, a 12-minute measured walk, and a Pulmonary Impact Profile Scale developed by the researcher. Lower scores on the HRHS indicated higher levels of hardiness, with a median split used to identify high and low hardy individuals. Range of HRHS scores for this sample was 77-186, with mean score 126.2 ± 20.4 and mean subscale scores for control 46.1 ± 9.4 , commitment 40.5 ± 7.1 , and challenge 39.6 ± 7.9 . Results also indicated that high hardy subjects used "painful problem solving" strategies significantly more often than did low hardy subjects. Commitment and challenge

components of hardiness had significant correlations to the 12-minute measured walk, while control did not. Findings suggested that the higher the hardiness level, the further the subject walked (Narsavage & Weaver, 1994). Narsavage (1990) speculated that hardiness may be three interactive components that do not have to be present at the same time; each or several of the elements may combine to produce different levels of hardiness. One limitation stated in the study was subjects' difficulty with understanding some HRHS items.

An exploratory study with open-heart surgery patients involved both the concepts of self-efficacy and hardiness in relation to recovery. Blair (1990) hypothesized that persons possessing more psychological resources--hardiness, dispositional optimism, social support, and Type A characteristics--would have a generally shorter hospital stay with fewer complications, and would report less emotional distress prior to surgery and during the early phase of recovery. A sample of 97 consecutive open-heart surgery patients participated, completing a set of questionnaires providing data on both personal psychological resources and emotional status pre and post-surgery. The 36-item Hardiness Scale was utilized to assess hardiness. A self-efficacy measure developed by the researcher for cardiac patients was part of the questionnaire packet on emotional status; also included in this were measures of anxiety, depression, life satisfaction, and view of the future. Findings demonstrated that patients with more psychological resources, particularly

hardiness and social support, had fewer problems with anxiety and depression both before and after surgery, and greater life satisfaction. Surgery had little impact on this, with those who were anxious prior to surgery also anxious following surgery. Psychological resources did not predict medical status variables related to hospital course. Pre-surgery emotional status rather than psychological resources did have a significant relationship to hospital course; those with more anxiety, less depression and higher self-efficacy spent less time in CCU and had generally shorter hospital stays.

Two other studies have utilized versions of the HRHS for research with individuals having actual health problems. Massey (1989) investigated the relationship between powerlessness, hardiness, diagnosis, and hopelessness in patients hospitalized for metastatic cancer or cholecystectomy. With a volunteer convenience sample of 100 adults, 50 in each diagnostic group, the purpose of the descriptive correlational study was to explore whether hardiness and powerlessness added to the prediction of hopelessness if diagnosis was held constant. Hardiness was viewed as a moderator variable and was measured by the 40-item HRHS. Low scores indicated high hardy individuals. Findings indicated that all scores were significantly higher for patients with cancer than for those with cholecystectomy. Mean scores for cancer patients were: total HRHS 99.2 ± 22.2 , control 41.2 ± 11.4 , commitment 31.5 ± 6.7 , and challenge 26.6 ± 8.5 . Mean scores for the cholecystectomy patients were:

total 91.9 ± 18.6 , control 35.2 ± 9.3 , commitment 31.4 ± 6.2 , and challenge 25.2 ± 7.3 . Health-related hardiness (HRH) accounted for 12% and age contributed 11% to the variance in hopelessness for cholecystectomy patients. HRH accounted for 32% of the variance in hopelessness for those with metastatic cancer. Results of the hierarchical multiple regression analysis revealed that HRH had greater predictive power than powerlessness or diagnosis and accounted for 27% of the variance in hopelessness. In addition, subjects from higher SES were significantly more hardy and felt less hopeless and powerless than those from lower SES.

In a correlational study, Levi (1990) investigated human responses to an acute stressor in the form of hospitalization for surgery. Hardiness and coping were conceptualized as mediating factors between perceived uncertainty and functional outcome consequences after discharge for the 79 female subjects participating. A sample size of 85 met the requirements for power analysis with medium effect size, $\alpha = .05$, and power = .80. Mean age of the sample was 44.3 years, and all were hospitalized for elective surgery, over 80% for gynecological surgery. Four scales were used in the study: Mishel Uncertainty in Illness, the 48-item HRHS, Jalowiec Coping Scale, and Sickness Impact Profile for functional outcome after surgery. Initial measures were obtained the day of hospital admission, and outcome evaluated four weeks after discharge. Low scores on HRHS indicated high hardy individuals. Results of mean scores for the sample

were: total HRHS 138.9, control 51.77, commitment 28.11, and challenge 61.32. A low control component was associated with greater dysfunction in both physical and psychosocial areas; no other hardiness measure was associated with functional outcome. Low commitment was correlated with uncertainty. The significant predictor variable in the study was the ambiguity factor of the uncertainty scale. Several limitations noted by the researcher were the timing of the initial interview and measures, which might have been better done post-surgery; the focus on acute versus chronic problems/stress; and a high negative correlation between the challenge and commitment scales of the HRHS.

Several theoretical and methodological issues in the definition of hardiness and the use of scales to measure the construct have been identified in the literature. Funk and Houston (1987), Hull, Van Treuren, and Virnelli (1987), Tartasky (1993), and Wagnild and Young (1991) have been critical of the development of the original scales used to measure hardiness, as well as of the definition of the construct itself. Criticisms have included measuring a construct based solely on negative indicators; utilizing low scores to indicate the presence of the construct, e.g. low scores on a scale of alienation to indicate the presence of commitment; and questions as to whether hardiness is a two-dimensional rather than three-dimensional construct. Tartasky (1993) indicated that the Health-Related Hardiness Scale as re-evaluated by Pollock and Duffy (1990) is more consistent

with earlier research findings and criticisms because it more accurately measures a two-dimensional rather than three dimensional construct.

Conclusions

The studies of outcome in clients with schizophrenia over the short, middle, and long-term indicate that heterogeneity of outcome is a common feature of all follow-up intervals. At least 10% of all clients in the various study samples were described as recovered at follow-up; thus a large percentage of clients were also described as not recovered, although the percent improved or recovered seems to increase with length of follow-up. None of the studies support the prognosis of downhill course with progressive deterioration as inevitable in schizophrenia. However, differences in reports of percent of clients recovered seem related to length of follow-up interval, type of and variety of instruments used to assess outcome, and whether or not the sample was initially totally inpatient or included outpatient based clients as well. Differences between clients at initial treatment that might distinguish them as individuals who have more potential for recovery also seems a question open to further research. The percentage of clients recovered in early-phase schizophrenia and chronic schizophrenia also varies, with recovery in populations described as chronic not greatly different from early-phase clients.

Research involving the construct of locus of control (LOC) or health locus of control (HLC) has generally

demonstrated that an internal LOC or HLC seems associated with better functioning. This was demonstrated in samples of schizophrenic clients and potentially in alcoholic clients. Qualitative studies attest to the fact that clients with schizophrenia use control mechanisms and recognize their importance in managing their illness. Studies of clients with chronic physical illness also demonstrate the association of an internal HLC to progress and recovery, although, as with chronic mental health clients, a more external orientation seems the norm. One study demonstrated that planned nursing interventions can influence and modify an individual's HLC orientation. In addition, the external HLC orientation of clients with chronic renal disease has been described as a realistic adaptation to chronic illness when clients are dependent on technology and health professionals for health and well-being.

Studies combining schizophrenia and self-efficacy to this point have been intervention-oriented, with the goal of increasing the client's or the family's sense of self-efficacy. No specific instruments for the measurement of perceived self-efficacy in schizophrenic clients were reported in the literature reviewed. Intervention studies of various types in other mental health disorders have successfully used level of perceived self-efficacy as a measure of outcome/recovery, as well as predictors over time of relapse or recovery. Self-efficacy has also demonstrated good predictive value in adaptation to chronic physical disability,

and may be predictive of outcome after major surgery. Since perceived self-efficacy is theoretically described as situation and behavior-specific, instruments utilized in the studies were frequently researcher-developed to the domain of the study. As with studies of HLC, few, if any, of the studies provided information on power analysis or adequacy of sample size.

Research focusing on the construct of hardiness and health-related hardiness in individuals with or without chronic illness is notable for the several instruments and versions of those instruments used. Questions about the original definition and measurement of hardiness have been raised. The construct has been measured in relation to total hardiness as well as component subscale scores for control, commitment, and challenge. Few studies have focused on clients with mental health disorders and hardiness, although subjective reports of clients with schizophrenia and other psychoses seem to verify the presence of hardiness and its component elements in such clients. A number of studies have utilized the HRHS to investigate hardiness in clients with chronic physical illness and all have identified the characteristic in these sample populations. Comparison of scores across studies is somewhat difficult because of different versions of the HRHS used: the original 48-item version, a 51-item version, and a newer 40-item version. As a general finding in these studies, clients with more disabling conditions such as chronic renal disease and COPD seem less

hardy than those with disorders such as hypertension or rheumatoid arthritis. The relation of hardiness to psychosocial adaptation and clients' well-being was confirmed in several chronic illnesses, but results were conflicting in regard to physiologic and psychosocial adaptation in others. Power analysis and adequate sample size was reported for some studies, but may have been problematic in others. Hardiness was also a significant predictor of hopelessness in a sample of hospitalized clients with metastatic cancer or cholecystectomy.

In summary, the potential for recovery of at least some portion of clients diagnosed as schizophrenic exists at all follow-up intervals, in chronic clients as well as those in an early stage of the disorder. An internal health locus of control seems to be associated with better levels of functioning, although the majority of clients with chronic illness demonstrate a more external HLC orientation. Perceived self-efficacy has demonstrated consistent association with recovery and better outcome in almost all mental and physical health domains where the focus has been specific to situation or behavior; it has been an accurate predictor of relapse and recovery as well. The presence of psychological hardiness has been identified in populations of clients with chronic physical illness and in several studies of clients with mental health disorders, although the measurement of this construct by different versions of the HRHS makes comparisons of clients across diagnoses somewhat

problematic. Therefore, a study that examines the relationship between health locus of control, perceived self-efficacy, hardiness, and recovery in clients with schizophrenia will demonstrate whether such clients are similar to individuals with other chronic physical and mental illnesses in possessing the above characteristics, and whether their relationship to recovery holds true across diagnoses.

CHAPTER III

METHODOLOGY

Purpose

The purpose of this study was twofold, first, to determine whether the variables of health locus of control, perceived self-efficacy, and hardiness were related to recovery in schizophrenia. A second purpose was to determine which of the three might be the best predictor of recovery in schizophrenia.

Research Design

A descriptive, correlational, ex post facto design was used. The investigator sought to answer two questions: (a) Are the concepts of health locus of control, perceived self-efficacy, and hardiness related to recovery in schizophrenia? (b) Which of these is the best predictor of recovery in schizophrenia?

Variables

Three independent variables and one dependent variable were the focus of this research.

Independent Variables

The independent variables were health locus of control as measured by the Multidimensional Health Locus of Control (MHLC) Scale, perceived self-efficacy as measured by the Self-Efficacy Scale for Schizophrenic-Spectrum Disorders, and hardiness as measured by the Health-Related Hardiness Scale (HRHS).

Dependent Variable

The dependent variable was level of function as measured by the Strauss-Carpenter Level of Function (LOF) Scale; this served as the measure of recovery in the study.

Statistical Hypotheses

Five statistical hypotheses were tested for significance in this study at $\alpha=.05$. Four of the hypotheses were used to test the correlation of the independent variables with the dependent variable of level of function. The fifth hypothesis was used to test the significance of prediction of the independent variables on the dependent variable.

Hypothesis 1

Scores on the Self-Efficacy Scale for Schizophrenic-Spectrum Disorders will be positively correlated with scores on the Strauss-Carpenter LOF Scale.

Hypothesis 2

Scores on the internal subscale of the MHLC Scale will be positively correlated with scores on the Strauss-Carpenter LOF Scale.

Hypothesis 3

Scores on the powerful other subscale of the MHLC Scale will be positively correlated with scores on the Strauss-Carpenter LOF Scale.

Hypothesis 4

Scores on the HRHS will be positively correlated with scores on the Strauss-Carpenter LOF Scale.

Hypothesis 5

Perceived self-efficacy will explain more of the variance in scores on the Strauss-Carpenter LOF Scale than any of the other three study variables.

Setting

Nineteen outpatient mental health facilities located in south-central and southeastern Pennsylvania and central Maryland were the setting for the study.

Subjects

A purposive sample of 85 outpatient subjects was obtained for the study. There were five selection criteria: (a) current Diagnostic and Statistical Manual of Mental Disorders (DSM III-R) (American Psychiatric Association, 1987) Axis I diagnosis of schizophrenia or schizoaffective disorder; (b) one previous hospitalization for schizophrenia or schizoaffective disorder within the past five years; (c) no current Axis I diagnosis of drug or alcohol disorder, or significant Axis II personality disorder which currently impairs functioning; (d) at least 18 years of age; (e) able to read and speak English. A sample size of N=85 was required as determined by Cohen and Cohen's (1983) statistical power analysis (medium effect size, $\alpha=.05$, power=.80).

Instrumentation

Four instruments were used to quantify the variables under study. These were the Multidimensional Health Locus of Control Scale, the Self-Efficacy Scale for Schizophrenic-

Spectrum Disorders, the Health-Related Hardiness Scale, and the Strauss-Carpenter Level of Function Scale.

Multidimensional Health Locus of Control Scale

The Multidimensional Health Locus of Control (MHLC) Scale (see Appendix A), developed by Wallston et al. (1978), was used to measure perceived control of health. The instrument contains three subscales of six items each to measure the multiple dimensions of locus of control: internal, chance, and powerful others. The subject responds to each subscale statement on a Likert-type scale ranging from strongly agree (scored as 6) to strongly disagree (scored as one). The subject receives a score on each subscale. The higher the score on the internal subscale, the more personal control the subject perceives he or she has over their own health. The higher the scores on the chance and powerful other subscales, the more control over personal health is attributed to chance or to others, respectively. There are two alternate forms of the instrument, Form A and Form B; Form B was utilized for this study.

Evidence for both reliability and validity has been established for the MHLC Scale. Internal consistency reliability using Cronbach's alpha ranged from .69 to .72 for the three subscales of Form B (Wallston et al., 1978). Indications of predictive, criterion-referenced validity were established by correlations of the MHLC Scale with health status. Health status correlated positively with the internal subscale, negatively with chance subscale, and did not

correlate with the powerful other subscale (Wallston et al., 1978). Evidence of construct validity has been established by correlation of the scales with other measures of locus of control, including Levenson's Multidimensional Locus of Control Scale for Psychiatric Patients (Corcoran & Fischer, 1987).

The Self-Efficacy Scale for Schizophrenic-Spectrum Disorders

The Self-Efficacy Scale for Schizophrenic-Spectrum Disorders (see Appendix B), an instrument developed by McDermott (1989), was used to measure perceived self-efficacy. The 57-item instrument contains three 19-item subscales which measure self-efficacy about ability to perform behaviors or manage aspects of behavior in regard to positive symptoms, negative symptoms, and social situations. Examples of positive symptoms are delusions and hallucinations. Negative symptoms are defined as an absence of normal functioning, such as apathy and blunted affect (McDermott, 1989). The score for each item is obtained from the subject's rating on a scale of zero to 100 of their confidence in their ability to perform the behavior described. The higher the rating, the greater the sense of self-efficacy. Each subscale score is calculated by averaging the various items on that subscale. A total score for the SES is obtained by averaging the scores for the 57 items on the scale, using all three subscales (B. E. McDermott, personal communication, Oct. 24, 1994).

Initial evidence for both reliability and validity has been established (McDermott, 1989). Cronbach's alpha for each

subscale was .92 or higher, and test-retest reliability of the instrument and subscales was .79-.87 over two weeks.

McDermott reported adequate face and content validity through use of a panel of experts and initial testing with samples of schizophrenic subjects. Moderately good construct validity is reported from correlation of the total scale with Rosenberg's Self-Esteem Scale and Rotter's Locus of Control Scale and with the Positive and Negative Syndrome Scale and Quality of Life Scale for the three subscales (McDermott, 1989).

Health-Related Hardiness Scale

The Health-Related Hardiness Scale (HRHS) (see Appendix C), developed by Pollock and Duffy (1990), was used to measure the hardiness construct. The HRHS in its current version is a 34-item instrument with a six point Likert-type format that ranges from strongly agree (scored as 6) to strongly disagree (scored as one). It can be used to measure the unitary construct of health-related hardiness and/or the two dimensions of control and commitment/challenge. The control subscale contains 14 items, and the commitment/challenge subscale 20 items. Total scores may range from 34 to 204 with high scores indicating the presence of hardiness. The 34-item version of the scale uses positive as well as negative indicators of the elements of hardiness (S. E. Pollock, personal communication, June, 1992).

Reliability and validity for the instrument have been reported by Pollock and Duffy (1990). Cronbach's alpha of .91 for the total scale and .87 for each subscale give evidence of

internal consistency; test-retest reliability over six months is reported as .76 total scale and .78 and .74 for the control and commitment/challenge subscales. Content validity of the original HRHS was established by use of a panel of clinical nursing experts and pilot studies with healthy persons and persons with chronic physical illness. Evidence for construct validity was provided by the results of a principle components analysis with chronically ill subjects supporting the two dimensions of commitment/challenge and control, and by moderate correlation with Kobasa's Hardiness Scale (Pollock & Duffy, 1990).

Strauss-Carpenter Level of Function Scale

The Strauss-Carpenter (1972) Level of Function Scale, 1989 version, (see Appendix D) as revised by the investigator, was utilized as the measure of recovery in schizophrenia. Level of function for each subject was evaluated through an interview with the investigator with the Scale serving as a structured interview guide. The Level of Function (LOF) Scale assesses outcome in schizophrenia in relation to length of hospitalizations, quantity and quality of social relations and employment, presence/absence of psychiatric symptomatology, ability to meet basic needs, and an overall clinical global rating of level of function. Symptoms are rated over the past month and all other areas over the past six months, based on the subject's most usual experience. Each area is scored on a scale of zero (worst functioning) to four (best functioning)

Total outcome score is obtained by adding the item area scores and on the 1989 version, revised, may range from 0 to 32.

The LOF Scale was developed for use in the World Health Organization International Pilot Study of Schizophrenia and has been utilized in numerous outcome studies (Breier et al., 1991; Carone et al., 1991; Harding, Brooks, et al., 1987; Carpenter & Strauss, 1975; McGlashan, 1984). Carone et al. (1991) report a correlation of $r=.81$ for the LOF Scale with the Global Assessment Scale.

The 1989 version of the Scale was assessed for content validity by a panel of psychiatric nursing clinical experts for the current study. Based on their comments, a revision of the Scale was developed by the investigator with clearly defined outcome terminology for each of the areas assessed. In addition, a question on whether level of function for each area has changed in the specified period was added.

Demographic Data Form

A demographic information form (see Appendix E) developed by the investigator was used to gather background data. This included information on gender, age, ethnic background, education, socioeconomic status, marital status, living situation, and psychiatric hospitalization history. In addition, information about friendships, type of work, and use of prescribed medications was elicited.

Pilot Study

A pilot study was conducted to refine procedures and to test instruments as well as to determine the length of time required for subjects' participation. In addition, intra-rater reliability for use of the LOF Scale was established. A sample equivalent to approximately 10% of the proposed study sample was obtained for participation in the pilot.

Data Collection Procedure

Approval for the study was obtained through the Committee for the Protection of Human Subjects at the Catholic University of America and through the appropriate institutional review committees for the mental health agencies. Subjects were accessed through staff at the agencies. Staff were requested to notify potential subjects about the on-going nature of the study and opportunities to participate. Participation in the study was voluntary. Potential subjects were told that participation or non-participation in the study in no way affected treatment or access at the agencies. The investigator explained the study to potential subjects who expressed interest in possible participation. Written informed consent, release of record information, and an appointment for data collection were arranged with those who chose to participate. Data collection from participants took place in a private room at the agency. Information for the demographic data form and Level of Function Scale was collected through a structured interview by the investigator. Subjects were then asked to complete the

three instruments in the following order: MHLC Scale, Self-Efficacy Scale for Schizophrenic-Spectrum Disorders, and the HRHS.

Data Analysis

Data analysis was conducted in several steps. Descriptive statistics were used to summarize the demographic data. A multiple regression analysis was used for hypothesis testing, utilizing a hierarchical model to determine the order of entry of independent variables into the regression equation. Scores from the Self-Efficacy Scale, MHLC Scale, and the HRHS were entered as independent variables into the regression with Level of Function score as the dependent measure. The SPSS/PC+ Information Analysis System was used for data analysis.

Protection of Human Subjects

Subjects in this research were protected in several ways. First, participation was voluntary and the decision was made by the subject. Subjects were told that they were free to withdraw from the study at any time and that participation or non-participation in no way affected treatment at the mental health agency. Second, the informed consent form (see Appendix F) was signed by the subject, and a copy kept by the subject. Information on potential risks and benefits of study participation as well as a thorough explanation of the study's purpose, duration, and confidentiality for participants was provided prior to signing the informed consent. Third, confidentiality was maintained through privacy during data

collection and numerical coding on questionnaires and data forms. When data collection was completed, code sheets matching data to subject names were destroyed. Potential risks and benefits of study participation included the following, (a) risks--the potential for increased anxiety during data collection because of the personal nature of some questionnaire items and interview questions; (b) benefits--the potential for increased self-awareness and self-esteem due to having successfully completed study participation and having contributed to knowledge about recovery. Additional protection for subjects was provided by the investigator's experience as a psychiatric nurse clinician. If a subject demonstrated signs of increasing anxiety during study participation, data collection was terminated, and the investigator intervened to decrease the subject's anxiety level.

CHAPTER IV

FINDINGS

The purpose of this study was twofold: first, to determine whether the variables of health locus of control, perceived self-efficacy, and hardiness were related to recovery in schizophrenia; second, to determine which of the three might be the best predictor of recovery in schizophrenia. This descriptive correlational study was conducted in 19 outpatient mental health facilities located in southcentral and southeastern Pennsylvania and central Maryland, serving urban, suburban, and rural populations. The subjects consisted of a purposive sample of 85 individuals, both male and female, with a current Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 1987) Axis I diagnosis of schizophrenia or schizoaffective disorder, who had at least one previous hospitalization for schizophrenia or schizoaffective disorder within the past five years, and who were currently receiving services at one of the outpatient facilities.

Data for the study were obtained by two methods. Demographic and level of function information were collected through a structured interview with the investigator using the demographic data form and the Strauss-Carpenter Level of Function (LOF) Scale. Subjects were then asked by the investigator to complete the three self-report instruments: (a) the Multidimensional Health Locus of Control (MHLC) Scale

(Wallston et al., 1978), (b) the Self-Efficacy Scale for Schizophrenic-Spectrum Disorders (SES) (McDermott, 1989), and (c) the Health-Related Hardiness Scale (HRHS) (Pollock & Duffy, 1990).

Pilot Study

A pilot study was conducted on six subjects who met the study criteria. These subjects were able to answer the questions elicited through the structured interview for the demographic data form and the LOF Scale without problems, and they did not appear to have difficulty understanding the three self-report instruments. One concern had been that the time needed to complete the instruments might be too long. However, the subjects finished the instruments in approximately twenty to thirty minutes. Most subjects took more time to provide additional information about themselves in the structured interview than had been anticipated. None of the subjects expressed negative opinions about having been asked to participate in the study, and several requested a copy of the findings of the study when it was completed. One item was added to the demographic data form, based on the pilot study, to elicit information about chronicity of illness.

Intra-rater reliability for use of the LOF Scale was established during the pilot study, using the procedure described by Waltz and Bausell (1981). Subjects' level of function was rated by the investigator at the time of each interview but not recorded on the LOF Scale form.

Approximately two weeks later the LOF interview response sheets were shuffled and rescored using the same procedure employed the first time. A Pearson Product Moment correlation coefficient of $r=.99$ was obtained for the two scorings.

Format for Data Analysis

A descriptive, correlational, ex post facto design was selected to investigate whether the variables of health locus of control, perceived self-efficacy, and hardiness were related to recovery in schizophrenia, and which of the three might be the best predictor of recovery. Only data from subjects who were able to complete the structured interview with the investigator and the three self-report instruments in one meeting were included in the data analysis. For all statistical tests, a level of significance of .05 was chosen. Descriptive statistics were used to summarize the demographic data. Multiple regression analysis was used for hypothesis testing, with a hierarchical model utilized to determine the order of entry of the independent variables into the regression equation.

The data collected and analyzed in this study are presented in this chapter as follows: (a) data analysis in relation to hypotheses, (b) description of the sample, (c) data from study scales, (d) data from hypothesis testing, (e) additional findings, (f) conclusions, and (g) summary.

Data Analysis in Relation to the Hypotheses

Ninety-five subjects, excluding those in the pilot study, were interviewed; of these, ten were ineligible and thus

excluded from data analysis. Three of the ten were unable or unwilling to complete the three self-report instruments, one had a current diagnosis of major depression, five had not been hospitalized within the past five years, and one withdrew from the study.

Description of the Sample

Demographic data provided information on age, education, and chronicity of illness, indicated by number of psychiatric hospitalizations and age at first hospitalization. The demographic data also provided information on gender, ethnic background, marital status, living situation, income, and employment status of the subjects. In addition, information on friendships, change in LOF, prescribed medications, psychiatric diagnosis, and date of most recent hospitalization was obtained.

Demographic Characteristics of the Subjects

Subjects ranged in age from 20 to 69 years ($M=39.7$ years, $SD=12.0$) and had completed a mean of 12.3 ($SD=2.4$) years of education. Mean number of hospitalizations for psychiatric illness was 7.9 ($SD=6.8$) with a median of 6 hospitalizations. Age at first hospitalization ranged from 14 to 65 years old ($M=24.9$ years, $SD=9.3$), with the highest proportion of first hospitalizations occurring at the age of 22 (12%). Thus, the average subject was an individual with approximately a 15-year history of psychiatric illness who had been hospitalized at least 6 times for mental health problems. Thirty-six percent ($n=31$) of the subjects were female and 64% ($n=54$) were male.

The subjects were predominately white (n=78, 91.8%), had never married (n=58, 68.2%), and were living in community housing for mental health clients (n=49, 58%), as shown in Table 1.

Table 1

Frequency Distribution for Demographics of Subjects

Subjects	Frequency	Percent
<u>Age</u>		
20-29	13	15.3
30-39	37	43.5
40-49	19	22.4
50-59	7	8.2
60-69	9	10.6
<u>Ethnic background</u>		
Black	6	7.1
White	78	91.8
Other	1	1.2
<u>Marital status</u>		
Never married	58	68.2
Married	8	9.4
Separated	2	2.4
Divorced	16	18.8
Widowed	1	1.2
<u>Living Situation</u>		
Alone	12	14.1
Community housing	49	57.6
With Family	23	27.1
Shelter	1	1.2

In the past six months, 57% (n=48) of the sample had not worked outside the home. Over half (n=44) stated SSI/SSD as their source of income, and 57% (n=48) had a yearly household income of \$5,000-\$9,999. Table 2 presents frequencies for income, income source, and employment status. Six individuals either did not know their income or did not disclose this.

Table 2

Frequency Distribution for Income and Employment

Subjects	Frequency	Percent
<u>Income^a</u>		
\$1-4,999	17	21.5
\$5,000-9,999	48	60.7
\$10,000-14,999	4	5.1
\$15,000-19,999	1	1.3
\$20,000-24,999	2	2.5
\$25,000-29,999	4	5.1
30,000-34,999	3	3.8
<u>Income source^b</u>		
SSI/SSD	44	51.8
Savings	1	1.2
Public assistance	3	3.5
Other disability	3	3.5
Mixed source	34	40.0

(Table 2 continued)

Frequency Distribution for Income and Employment

Subjects	Frequency	Percent
<u>Employment status^c</u>		
Unemployed	48	56.5
Retired	4	4.7
Volunteer work	15	17.6
Student	1	1.2
Homemaker	3	3.5
Sheltered workshop	7	8.2
Employed, other job	7	8.2

^an=79 ^bn=85

Approximately half (n=43, 50.6%) of the subjects in the sample described themselves as having few (0-3) friends, although over half (n=48, 56.5%) saw their friends or had contact with them at least once per week in the past 6 months. The mental health system was the sole source of friendships for 47% (n=40) of the sample, often through community housing or day treatment/clubhouse programs. More than a third (n=33, 38.8%) indicated the neighborhood and/or social contacts as a source of friendships, although the mental health system was also indicated as a source by 16 of these subjects. Responses to questions on friendships are shown in Table 3.

Table 3

Frequency Distribution for Friendships of Subjects

Friendships	Frequency	Percent
<u>Frequency of contact</u>		
At least once/week	48	56.5
Once every 2 weeks	8	9.4
Once per month	8	9.4
Only at day program	11	12.9
Do not meet friends	10	11.8
<u>Number of friends</u>		
0-3	43	50.6
4-6	27	31.8
7-10	15	17.6
<u>Source of friendships</u>		
Mental health system	40	47.0
Work/school	6	7.1
Neighborhood/social	14	16.5
Mental health/work	6	7.1
Mental health/social	16	18.8
Work/social	3	3.5

Paranoid schizophrenia was the predominate (n=41, 48.2%) DSM-III-R (American Psychiatric Association, 1987) Axis I diagnosis of the subjects in the sample. Almost one third (n=25, 29.4%) had been hospitalized within the past 6 months,

as shown in Table 4, which also provides frequencies on psychiatric diagnosis. All were taking psychotropic medications. The most frequently prescribed medications among subjects were standard anti-psychotic drugs (n=62, 72.9%). Approximately one third (n=29, 34.1%) were taking one of the newer atypical anti-psychotic medications, clozapine or risperidone. Table 5 presents frequencies on psychotropic medication. After acknowledging the difficulty of taking prescribed medications as ordered, the investigator asked subjects approximately what percent of the time they followed the prescribed dose and frequency. The overwhelming majority (n=72, 84.7%) stated that they took the drugs as prescribed 100% of the time, 14% (n=12) stated 90-100% of the time, and 1% (n=1) stated 75-90% of the time as prescribed. Thirty-seven percent (n=31) also took medications for other illnesses; the majority of these were for cardiovascular disease (n=18).

Table 4

Frequency Distribution of DSM III-R Diagnoses and Hospitalizations

Subjects	Frequency	Percent
<u>Axis I Diagnosis</u>		
Paranoid schizophrenia	41	48.2
Non-paranoid schizophrenia	21	24.7
Schizoaffective disorder	23	27.1
<u>Most recent psychiatric hospitalization</u>		
Past 6 months	25	29.4
Past year	20	23.5
Past 2 years	18	21.2
Past 3 years	8	9.4
Past 4/5 years	14	16.5

Table 5

Frequency Distribution for Psychotropic Medications of Subjects

Medication	Frequency	Percent
Anti-psychotic	62	72.9
Clozapine/risperidone	29	34.1
Anti-parkinsonian	47	55.3

(Table 5 continued)

Frequency Distribution for Psychotropic Medications

Medication	Frequency	Percent
Anti-anxiety	15	17.6
Lithium/carbamazepine	17	20.0
Anti-depressant	20	23.5

Note. Many subjects had more than one type of psychotropic medication prescribed; total numbers of medications therefore reflect $n > 85$.

During the Level of Function portion of the structured interview, subjects were asked about changes in LOF from two time perspectives: (a) over the past 6 months in regard to social functioning, work, and activities of daily living (ADL), and (b) over the past month in regard to psychiatric symptoms. Most gave a stable history of LOF in each of the four areas. Eighty percent ($n=68$) described no change in the social area of LOF, 87% ($n=74$) stated no change in work, 62% ($n=53$) stated no change in the symptom area of LOF, and 88% ($n=75$) described no change in managing activities of daily living. Approximately 18% ($n=15$) described themselves as more active socially or having closer friendships, and 28% ($n=24$) described their incidence of psychiatric symptoms as lower. Table 6 provides information on changes in LOF.

Table 6

Frequency Distribution for Changes in Level of Function of Subjects

LOF area	Frequency	Percent
<u>Social</u>		
	I ^a =15	17.6
	D ^b =2	2.4
	S ^c =68	80.0
<u>Work</u>		
	I=5	5.9
	D=6	7.1
	S=74	87.0
<u>ADL</u>		
	I=5	5.9
	D=5	5.9
	S=75	88.2
<u>Psychiatric symptoms^d</u>		
	I=8	9.4
	D=24	28.2
	S=53	62.4

I^a=increased D^b=decreased S^c=stable LOF^d=over past month; all other LOF areas over past 6 months

Data From Study Scales

Multidimensional Health Locus of Control Scale

The Internal Health Locus of Control (IHLC) subscale scores ranged from 14 to 36 with a mean of 25.2 and standard deviation of 4.85. This compares to means of 25.78 in chronically ill medical patients, 26.68 in college students, 25.55 in healthy adults, and 27.38 in individuals engaged in preventive health behaviors (K. W. Wallston, personal communication, March, 1992).

The Powerful Other Health Locus of Control (PHLC) subscale scores ranged from 6 to 36 with a mean of 24.54 and standard deviation of 6.34. This compares to means of 22.54 in chronically ill medical patients, 17.87 in college students, 19.16 in healthy adults, and 18.44 in individuals engaged in preventive health behaviors (K. W. Wallston, personal communication, March, 1992).

The Chance Health Locus of Control (CHLC) subscale scores ranged from 6 to 34 with a mean of 19.08 and standard deviation of 5.82. This compares to means of 17.64 in chronic medical patients, 16.72 in college students, 16.21 in healthy adults, and 15.52 in individuals engaged in preventive health behaviors (K. W. Wallston, personal communication, March, 1992).

Self-Efficacy Scale for Schizophrenic-Spectrum Disorders

Total scores for the SES scale ranged from 29 to 100, with a mean of 68.59 and standard deviation of 15.69. This compares to a mean for total SES score of 74.39 (Time 1) and

77.23 (Time 2) in McDermott's (1989) original sample of subjects for establishing test-retest reliability of the SES scale.

Health-Related Hardiness Scale

Total scores for the HRHS ranged from 109 to 194, with a mean of 152.35 and standard deviation of 20.29. Higher scores on this 34-item version of the scale indicate the presence of hardiness. Therefore, comparisons with other samples using previous versions of the HRHS where low scores are indicative of hardiness are difficult to interpret.

Level of Function Scale

Level of Function (LOF) Scale scores ranged from 8 to 30, with a mean of 18.32 and standard deviation of 4.69. Table 7 provides descriptive statistics for the instruments used in this study.

Table 7

Descriptive Statistics for Instruments

Instrument	Possible Range	Range	M	SD
MHLC:IHLC	6-36	14-36	25.2	4.85
PHLC	6-36	6-36	24.54	6.34
CHLC	6-36	6-34	19.08	5.82
SES	0-100	29-100	68.59	15.69
HRHS	34-204	109-194	152.35	20.29
LOF	0-32	8-30	18.32	4.69

Note. IHLC=Internal subscale, MHLC Scale PHLC=Powerful Other subscale, MHLC Scale CHLC=Chance subscale, MHLC Scale SES=Self-Efficacy Scale HRHS=Health-Related Hardiness Scale LOF=Level of Function Scale.

Data From Hypotheses Testing

Multiple regression analysis was used to measure the relationship between the study independent variables and recovery in schizophrenia. The dependent variable of recovery was the score on the Strauss-Carpenter LOF Scale. The independent variables were entered hierarchically as follows:

(1) Score on the Self-Efficacy Scale (SES) for Schizophrenic-Spectrum Disorders;

(2) Score on the Internal subscale of the Multidimensional Health Locus of Control (MHLC) Scale;

(3) Score on the Powerful Other subscale of the MHLC Scale;

(4) Score on the Health-Related Hardiness Scale (HRHS).

Five research hypotheses were tested within this study. Table 8 presents the zero order correlations.

Table 8

Zero Order Correlation Matrix for Research Hypotheses

	1	2	3	4	5
	LOF	SES	IHLC	PHLC	HRHS
1 LOF		.15	.04	.03	.34
2 SES			.28	.04	.48
3 IHLC				.45	.09
4 PHLC					-.05
5 HRHS					--

Note. LOF=Level of Function Scale SES=Self-Efficacy Scale
 IHLC=Internal subscale, MHLC Scale PHLC=Powerful Other
 subscale, MHLC Scale HRHS=Health-Related Hardiness Scale.

Table 9 presents the summary of the multiple regression using the hierarchical model with individual level of function scores as the dependent variable.

Table 9

Summary of Regression Analysis Using the Hierarchical Model
with LOF Scores as the Dependent Variable

Step	Variable	df	Multiple R	R ²	Beta	t ^a	p
1	SES	83	.147	.022	.147	1.35	.18
2	IHLC	82	.148	.022	-.008	-.07	.95
3	PHLC	81	.150	.023	.032	.26	.80
4	HRHS	80	.341	.116	.35	2.91	<.01

Note. LOF=Level of Function Scale SES=Self-Efficacy Scale
IHLC=Internal subscale, MHLC Scale PHLC=Powerful Other
subscale, MHLC Scale HRHS=Health-Related Hardiness Scale.
^a=Value of t when variable entered into the model.

The following provides a description of each hypothesis and the specific findings related to that hypothesis.

Hypothesis One: Perceived Self-Efficacy

H₁: Scores on the Self-Efficacy Scale for Schizophrenic-Spectrum Disorders (SES) will be positively correlated with scores on the Strauss-Carpenter LOF Scale.

A regression analysis was used to test the first statistical hypothesis. In step one of the model using hierarchical entry, scores on the SES were entered, and no significant relationship was found between the variable of

perceived self-efficacy and the dependent variable of level of function [$t(83)=1.358, p>.05, N.S.]$.

Based on these findings, the hypothesis that scores on the Self-Efficacy Scale for Schizophrenic-Spectrum Disorders will be positively correlated with scores on the Strauss-Carpenter LOF Scale was not supported.

Hypothesis Two: Internal Health Locus of Control

H_2 : Scores on the internal subscale of the Multidimensional Health Locus of Control (MHLC) Scale will be positively correlated with scores on the Strauss-Carpenter LOF Scale.

Regression analysis statistics were used to measure H_2 . Using step two of the hierarchical model, the scores on the internal (IHLC) subscale of the MHLC Scale were entered as the second variable in the equation. No significant relationship was found between internal health locus of control and level of function [$t(82)=-.066, p>.05, N.S.]$.

Based on these findings, hypothesis two that scores on the internal subscale of the MHLC Scale will be positively correlated with scores on the Strauss-Carpenter LOF Scale was not supported.

Hypothesis Three: Powerful Other Health Locus of Control

H_3 : Scores on the powerful other (PHLC) subscale of the MHLC Scale will be positively correlated with scores on the Strauss-Carpenter LOF Scale.

Step three of the regression analysis statistics measured the relationship between powerful other health locus of

control (PHLC) and the dependent variable of LOF. Using the hierarchical model, the scores on the PHLC subscale were entered as the third variable in the equation. No significant relationship was found between PHLC and LOF [$t(81)=.257$, $p>.05$, N.S.].

Therefore, there was no support for the statistical hypothesis that scores on the powerful other subscale of the MHLC Scale will be positively correlated with scores on the Strauss-Carpenter LOF Scale.

Hypothesis Four: Health-Related Hardiness

H₄: Scores on the Health-Related Hardiness Scale (HRHS) will be positively correlated with scores on the Strauss-Carpenter LOF Scale.

Regression analysis statistics were used to test the fourth statistical hypothesis. Scores on the HRHS were entered as the fourth variable in the regression equation, and a significant relationship was found between health-related hardiness and the dependent variable of level of function [$t(80)=2.909$, $p<.01$].

Based on these findings, the hypothesis that scores on the HRHS will be positively correlated with scores on the Strauss-Carpenter LOF Scale was supported.

Hypothesis Five: Predictors of Recovery

H₅: Perceived self-efficacy will explain more of the variance in scores on the Strauss-Carpenter LOF Scale than any of the other three predictor variables.

Regression analysis statistics utilizing a hierarchical

model for entry of variables into the regression equation were used to test H_5 . As described under Data From Hypotheses Testing, scores on the SES were entered on step one of the regression, scores on the IHLC subscale of the MHLC Scale were entered on step two, scores on the PHLC subscale of the MHLC Scale were entered on step three, and scores on the HRHS were entered on step four, with level of function as the dependent variable. As shown in Table 9, perceived self-efficacy explained approximately 2% of the variance in scores on the LOF Scale, internal health locus of control explained none of the variance, powerful other health locus of control explained none of the variance, and health-related hardiness explained approximately 9% of the variance. The total model explained approximately 12% of the variance in scores on the LOF Scale.

Based on these findings, statistical hypothesis five that perceived self-efficacy will explain more of the variance in scores on the Strauss-Carpenter LOF Scale than any of the other three predictor variables was not supported.

Additional Findings

Of the variables entered into the full model, hierarchical regression equation, only health-related hardiness was found to be significantly related to level of function [$t(80)=2.91, p<.01$]. As scores on the HRH Scale increased, scores on the LOF Scale also increased. Table 10 presents a correlation matrix for additional study variables, to include the Chance Health Locus of Control (CHLC) subscale of the MHLC Scale. In addition to supporting the observations

made through regression analysis, it is of interest to note that there was a significant correlation between the CHLC subscale of the MHLC Scale and the Strauss-Carpenter LOF Scale [$r = -.28$ (85), $p < .01$]. As scores on the Chance subscale decreased, scores on the LOF Scale increased, indicating that the less the subjects believed in chance as controlling their health, the higher their level of function.

Table 10

Correlation Coefficients for Study Variables

1	2	3	4	5	6	7	8	9	10
1	.04	-.28**	.03	.15	.34**	-.09	-.04	.04	-.01
2		.24*	.45**	.28**	.08	.11	-.14	.14	-.10
3			.31**	-.04	-.33**	.02	-.24*	-.03	.15
4				.04	-.05	.07	-.11	.09	-.02
5					.48**	.12	.06	-.07	-.22*
6						-.01	.25**	-.08	-.15
7							-.15	.27**	.09
8								-.23*	-.21*
9									.08

Note. 1 = LOF Score 2 = IHLC Score 3 = CHLC Score

4 = PHLC Score 5 = SES Score 6 = HRHS Score

7 = Subject Age 8 = Subject Education 9 = Subject Income

10 = Subject Number of Hospitalizations

* $p < .05$ ** $p < .01$ 1 tailed

Conclusions

In conclusion, no significant relationship was identified between the variables of (a) perceived self-efficacy, (b) internal health locus of control, (c) powerful other health locus of control and recovery in schizophrenia. There was a significant relationship between health-related hardiness and recovery in schizophrenia, with those subjects having higher levels of health-related hardiness also having a higher level of function. Health-related hardiness was also the only significant predictor of recovery in schizophrenia. In addition, chance health locus of control was significantly related to recovery in schizophrenia, with those subjects demonstrating a low chance health locus of control having a higher level of function.

Summary of Chapter

This chapter has presented the results of the present study subdivided into: (a) descriptive statistics for the demographic characteristics of the sample, as well as for data from study instruments, and (b) hypothesis testing of the relationship between the independent variables of health locus of control, perceived self-efficacy, and hardiness and the dependent variable of recovery in schizophrenia.

CHAPTER V

SUMMARY, DISCUSSION, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

The purpose of this study was twofold: first, to determine whether the variables of health locus of control, perceived self-efficacy, and hardiness were related to recovery in schizophrenia; second, to determine which of the three might be the best predictor of recovery in schizophrenia. The purpose of this chapter is to summarize and discuss the findings of the study, to identify implications supported by the findings, and to present recommendations for further research. Included in this chapter are the following sections: (a) statement of the research question, (b) research hypotheses, (c) summary of the findings, (d) discussion of the findings, (e) conclusions, (f) implications for nursing practice, and (g) recommendations for future research.

Statement of the Research Question

Are the concepts of health locus of control, perceived self-efficacy, and hardiness related to recovery in schizophrenia? A related research question was: Which of these is the best predictor of recovery in schizophrenia?

Research Hypotheses

H₁: Subjects who have higher levels of perceived self-efficacy will demonstrate higher levels of function than those with low levels of perceived self-efficacy.

H₂: Subjects who demonstrate a high internal health locus of control will achieve higher levels of function than those with low internal health locus of control.

H₃: Subjects who demonstrate a high powerful other health locus of control will achieve higher levels of function than those with low powerful other health locus of control.

H₄: Subjects with a high level of health-related hardiness will demonstrate higher levels of function than those with low levels of health-related hardiness.

H₅: Perceived self-efficacy will explain more of the variance in prediction of level of function than any of the other three variables.

Summary of the Findings

A multiple regression analysis for the five hypotheses identified one significant relationship between level of function and the study variables of health locus of control, perceived self-efficacy, and hardiness. Subjects with a high level of health-related hardiness demonstrated higher levels of function than those with low levels of health-related hardiness. As scores on the Health-Related Hardiness Scale (HRHS) increased, scores on the Strauss-Carpenter Level of Function (LOF) Scale also increased [$t(80)=2.91, p<.01$]. Health-related hardiness was also the only significant predictor of recovery in schizophrenia, explaining approximately 9% of the variance in scores on the LOF Scale. One additional finding of significance was the correlation between the Chance subscale of the Multidimensional Health

Locus of Control (MHLC) Scale and the Strauss-Carpenter LOF Scale [$r = -.28$ (85), $p < .01$]. As scores on the Chance subscale decreased, scores on the LOF Scale increased, indicating that the less the subjects believed in chance as controlling their health, the higher their level of function.

Discussion of the Findings

The following presents a discussion of findings related to the hypotheses considered in the study.

Hypothesis One: Perceived Self-Efficacy

The first hypothesis stated that subjects who have higher levels of perceived self-efficacy will demonstrate higher levels of function than those with low levels of perceived self-efficacy. Perceived self-efficacy was entered first into the multiple regression equation using a hierarchical model; no significant relationship was identified between perceived self-efficacy and level of function [$t(83) = 1.358$, $p > .05$, N.S.]. Based on these findings, H_1 could not be supported.

This finding of no significance is in contrast to other studies using self-efficacy successfully as a predictor of recovery in various physical and mental illnesses (Burling et al., 1989; Kavanaugh & Wilson, 1989; Portelunas-Campbell, 1982; Usaf & Kavanaugh, 1990; Wasseem, 1989; Williams et al., 1989). Several explanations may account for this difference. First, the majority of studies cited in the literature utilizing perceived self-efficacy as a predictor are intervention studies, with self-efficacy as a measure of change pre and post-treatment. The present study as a

descriptive, correlational study involved no intervention on the part of the investigator. Bandura (1977) defines self-efficacy as part of "an integrative theoretical framework to explain and to predict psychological changes achieved by different modes of treatment" (p. 190). There was no treatment in the present study to enhance the subject's level of self-efficacy in relation to behavioral outcomes.

Second, McDermott (1989) noted that among the individuals participating in the validation of the Self-Efficacy Scale for Schizophrenic-Spectrum Disorders (SES), "ratings of confidence were not reflected in actual abilities to perform behaviors" (p. 79). Although the subjects in her research judged themselves as efficacious in many areas, factual data about the sample indicated otherwise. The fact that individuals believe themselves capable of performing a behavior does not necessarily mean that they will perform it. McDermott provided an explanation for this discrepancy by noting that other factors besides perceived self-efficacy account for variations in behavior. This may be especially true in a sample of individuals with chronic mental illness. Connelly and Dilonardo (1993), in discussing self-efficacy and self-care issues in individuals with chronic mental illness, alluded to this problem. Connelly and Dilonardo stated that although the client's perceptions of self-efficacy are fostered through experiences of mastery, the client's mastery of aspects of self-care such as managing medication may not "produce full mastery over the illness or its symptoms" (p.

30). The individual's beliefs about their ability to manage the illness of schizophrenia may not be reflected in actual success in daily living, which was the outcome measure in the present study.

A third factor may also contribute to the lack of significance for hypothesis one. McDermott (1989) reported a significant but unexpected correlation between the SES and Rotter's Locus of Control Scale in the development of the SES. McDermott noted that one reason for this may lie in the wording of items on the SES, specifically those on the positive symptom self-efficacy subscale. These items ask the individual to rate their ability to control some aspect of their behavior. In view of the fact that, in the present study, hypothesis two relating to internal health locus of control was also not supported, an unknown, common factor may be contributing to findings in relation to both perceived self-efficacy and internal health locus of control.

Hypothesis Two: Internal Health Locus of Control

Hypothesis two stated that subjects who demonstrate a high internal health locus of control will achieve higher levels of function than those with low internal health locus of control. When entered into the multiple regression equation hierarchically as the second variable, internal health locus of control demonstrated no significant relationship with level of function [$t(82) = -.066$, $p > .05$, N.S.]. Based on these findings, H_2 could not be supported.

Reasons for the finding of no significance between internal health locus of control and level of function may be related to several factors. First, those subjects in the present study with a higher LOF may have learned that internal health locus of control is unrealistic in the face of chronic illness. The average subject in this sample was an individual with approximately a 15-year history of psychiatric illness who had been hospitalized at least six times for mental health problems. Over the course of their illness, individuals with schizophrenia may have relinquished an internal sense of control. Seeman and Seeman (1983) stated that a causal sequence for the sense of control of health is difficult to identify: one's sense of control can be a product of one's health experience, as well as a determinant of it. Bollin and Hart (1982) noted in their sample of subjects with chronic renal disease that two thirds were externally oriented; they further stated that patients had valid reasons to perceive an external sense of control, since life for them was often dependent on outside forces. Fetter and Lowery (1992) found that patients with schizophrenia attributed their psychiatric rehospitalization to internal causes but not to causes under their control. Even in patients who do follow prescribed medication regimens, Fetter and Lowery stated that relapse rates may be as high as 50%. Thus, rehospitalization, problems with illness, and lack of internal control may be a function of the illness itself.

A second related explanation for the lack of significance of findings for hypothesis two may be that the traditional internal orientation in health locus of control is less adaptive in individuals with chronic illness and is, therefore, not associated with higher levels of function. Fetter and Lowery (1992) stated that internal attributions for events which are considered controllable and changeable may increase effort and persistence, but may cause much distress for clients when relapse occurs while the clients are following prescribed treatments. A similar theme was echoed by Narsavage and Weaver (1994) in regard to individuals with chronic obstructive pulmonary disease: "...it may be frustrating, not adaptive, to try to control the outcomes of a process...which cannot be internally controlled" (p. 93).

Third, an explanation for the lack of significance in findings for hypothesis two may lie in an alternative theoretical understanding of the construct of health locus of control. Seeman and Seeman (1983) in their longitudinal study of the sense of control in illness described a high sense of control as being expressed by either (a) personal mastery, or (b) luck denial. Seeman and Seeman state "...denying the determinancy of luck in maintaining health, hence doing what one can preventively is not the same as positively asserting that getting sick is predominantly a matter the individual can control" (1983, p. 156). An additional finding in the present study was a significant correlation between negative chance health locus of control and higher level of function. This

finding may be an expression of the luck denial factor and an expression of an orientation more realistic and adaptive for individuals with schizophrenia than an internal orientation.

Hypothesis Three: Powerful Other Health Locus of Control

Hypothesis three stated that subjects who demonstrate a high powerful other health locus of control will achieve higher levels of function than those with low powerful other health locus of control. When entered into the multiple regression equation hierarchically as the third variable, powerful other health locus of control (PHLC) demonstrated no significant relationship with level of function [$t(81) = .257$, $p > .05$, N.S]. Based on these findings, hypothesis three could not be supported.

Although there is no exact explanation for this finding, several speculations may assist in understanding the lack of significance. Previous research, such as the study by Bollin and Hart (1982), Bergman (1985), and Levenson (1973), has identified clients with chronic physical and mental health disorders as highly external in health locus of control orientation as compared to healthy adults. As noted by Seeman and Seeman (1983), this may be related to the frequent contact that such individuals experience with health professionals. In the present study subjects also demonstrated a highly external orientation on both the PHLC subscale ($M = 24.54$) and the CHLC subscale ($M = 19.08$) of the MHLC Scale. Theoretically one might expect the more compliant, externally oriented client to attain a higher level of function because of

stricter adherence to the medical regimen prescribed by powerful other health professionals. However, as noted by Connelly and Dilonardo (1993), compliance is not always successful in achieving mastery over schizophrenia and thus attaining a higher level of function; relapse occurs even with compliance.

An explanation related to the MHLC Scale itself may also be relevant in regard to findings for H₃. Wallston et al. (1978) described the PHLC subscale as the only subscale to not correlate with actual health status when predictive validity of the MHLC Scale was first established. Because hypothesis three in the present study was a correlational hypothesis relating PHLC to level of function as a measure of recovery, lack of significant correlation may not be divergent from previous research. In addition, Pender (1985), in her intervention study which investigated ways to modify an individual's HLC beliefs, noted no change in PHLC scores in either treatment or control groups over the study period.

Hypothesis Four: Health-Related Hardiness

The fourth hypothesis stated that subjects with a high level of health-related hardiness will demonstrate higher levels of function than those with low levels of health-related hardiness. Health-related hardiness was entered hierarchically as the fourth and last variable into the multiple regression equation, and a significant relationship was found between health-related hardiness and level of

function [$t(80)=2.91$, $p<.01$]. Based on these findings, hypothesis four was supported.

This finding is similar to qualitative studies and subjective reports of clients in recovery from psychoses and schizophrenia which implied the presence of hardiness in such individuals (Deegan, 1988; Hatfield, 1989; Strauss, 1989). It also concurs with studies of hardiness in clients with chronic physical health problems (Massey, 1989; Narsavage, 1990; Narsavage & Weaver, 1994) where higher levels of hardiness were related to better functioning or level of hardiness predicted level of hopelessness.

Several issues noted earlier in the review of literature about the definition and measurement of hardiness (Funk & Houston, 1987; Hull et al., 1987; Tartasky, 1993; Wagnild & Young, 1991) may have been resolved in the 34-item version of the Health-Related Hardiness Scale (HRHS) used in the present study. The 34-item HRHS includes two subscales based on principal components analysis, control and commitment/challenge; it also uses positive as well as negative indicators of the elements of hardiness, and utilizes high scores to indicate the presence of hardiness (S. E. Pollock, personal communication, June, 1992). These changes in the instrument utilized to measure the construct of hardiness in this study may have contributed to the significance of the findings.

Hypothesis Five: Predictors of Recovery

Hypothesis five stated that perceived self-efficacy will explain more of the variance in prediction of level of function than any of the other three variables. When entered hierarchically into the regression equation with perceived self-efficacy entered first, internal health locus of control entered second, powerful other health locus of control entered third, and health-related hardiness entered fourth, the only significant predictor of level of function was health-related hardiness, which explained approximately 9% of the variance in level of function. Based on these findings, H_5 was not supported.

Explanations for the findings in hypothesis five seem related to the findings in H_1 and H_4 . Hypothesis one that focused on perceived self-efficacy was not supported. The lack of significant relationship between perceived self-efficacy and the outcome variable of level of function would preclude perceived self-efficacy from being a significant predictor of recovery in schizophrenia. Alternatively, the findings in H_4 that focused on health-related hardiness were significant. Health-related hardiness, although entered fourth in the hierarchical model of the regression equation, was a significant predictor of recovery in the sample of subjects participating in this study.

Additional Findings

Because the Multidimensional Health Locus of Control Scale includes three subscales to measure the construct of

health locus of control, subjects in this study received a score on the chance health locus of control (CHLC) subscale, as well as on the internal and powerful other subscales. The correlation matrix for the study variables demonstrated a significant relationship between CHLC and level of function, but in a negative direction [$r = -.28$ (85), $p < .01$]. Thus, the less the subjects believed in chance as controlling their health, the higher their level of function.

One explanation for this finding may lie in the statements by Seeman and Seeman (1983) about luck denial, noted previously under Discussion of Findings for hypothesis two. Seeman and Seeman used luck denial as a description of a belief about health locus of control identified in their study using the original Health Locus of Control (HLC) Scale (Wallston et al., 1978), precursor to the present MHLC Scale. Disagreement with the HLC Scale items about the importance of luck in controlling one's health resulted in a high luck denial score. This seems parallel to lack of agreement in the present study with items on the CHLC subscale of the MHLC Scale. In addition, a finding similar to the significant negative correlation in the present study was reported by Ellis (1991) in her research with individuals having rheumatoid arthritis. Using the MHLC Scale, Ellis found that health behavior was significantly negatively related to chance health locus of control. In a stepwise multiple regression, Ellis found negative chance health locus of control as the

major significant predictor of both health behavior and perceived health status.

Conclusions

This study investigated factors that might be related to recovery in schizophrenia by examining the relationship between health locus of control, perceived self-efficacy, hardiness, and recovery in schizophrenia. The following conclusions have emerged from the present study.

Concepts derived from social learning theory (Rotter, 1966, 1975) and existential psychology (Kobasa, 1979, 1982) can be appropriately applied to the stress-vulnerability model of schizophrenia (Day et al., 1987; Zubin et al., 1983; Zubin & Spring, 1977) to better understand the role of modulating factors in onset and recovery from an episode of illness. The stress-vulnerability model postulates that schizophrenia is a mental health disorder occurring in vulnerable individuals with life event stressors acting as a trigger to onset of an illness episode, unless modulating variables intervene to prevent it. This study supports the role of negative chance health locus of control (Wallston et al., 1978) as a modulating factor related to recovery in individuals who have previously experienced hospitalization for at least one episode of schizophrenia. The study also identifies the presence of hardiness as a characteristic of individuals with chronic mental illness, specifically schizophrenia. The present study supports health-related hardiness (Pollock & Duffy, 1990) as a significant modulating factor related to

recovery in individuals with schizophrenia, and supports health-related hardiness as a significant predictor of recovery.

Several concepts from social learning theory have not been supported by the findings of this study as modulating factors related to recovery in schizophrenia. Neither perceived self-efficacy (Bandura, 1977, 1989) nor the locus of control beliefs (Rotter, 1966, 1975) described as internal and powerful other health locus of control (Wallston et al., 1978) were significantly related to recovery. In addition, none of these concepts predicted recovery. Thus, while a causal relationship between the significant variables and recovery cannot be established, support for their role as modulating factors in recovery from an episode of schizophrenia is provided by this study.

Implications for Nursing Practice

The findings from this study suggest implications for psychiatric-mental health nursing practice and nursing education in two general areas: nurses' expectations of clients, and nursing interventions with clients.

First, nurses should not expect that clients who are more successful in recovery after an episode of schizophrenia will necessarily exhibit an internal health locus of control. Although many studies support this as a characteristic of successful recovery, the subjects in this study who were more successful displayed a negative chance orientation in health locus of control rather than the traditional internal

orientation. In addition, nurses should recognize that belief in a health professional may not be a critical factor in recovery for the client. Focusing nursing interventions on internal efforts and expectations of control or mastery by the client may be counterproductive rather than assistive in recovery.

Second, nursing interventions should support the development of a negative belief in the role of chance as controlling one's health in clients with schizophrenia. This might be pursued through factual education for clients about the illness of schizophrenia, its causes, course, and treatment. One model for successful education about schizophrenia would be the stress-vulnerability framework used in this study, focusing on biological causation and on information about preventive health measures in regard to stress and modulating factors. Information in regard to symptom monitoring and regulation, family environment, and medication management could also be included.

Third, nurses need to recognize that hardiness as a personality characteristic may be present in clients with schizophrenia, particularly in those who are more successful in recovery after an episode of illness. The elements of hardiness defined as operating in a health-specific context for those with actual health problems should be supported as a focus of nursing intervention. These include a sense of control and a commitment to dealing with the challenge of chronic illness. However, in the previous implications for

nursing practice, the development or support of a traditional internal belief about control of health was not recommended. Nurses might better support the development of an alternative belief implying control, that is, a negative belief in the role of luck or chance in controlling one's health. Thus, both elements of hardiness as defined in a health-specific context could be a focus of nursing intervention.

Finally, the role of perceived self-efficacy and its impact on recovery in clients with schizophrenia is still unclear. Further assessment of perceived self-efficacy as a possible factor in recovery is necessary before specific interventions or treatment modalities are developed based on this construct. Although theoretically clients with higher levels of perceived self-efficacy should be more persistent in coping and, therefore, by implication, more successful in efforts to deal with the illness of schizophrenia, this finding was not supported by the present study.

Faculty who teach psychiatric-mental health nursing should incorporate the above findings into teaching about schizophrenia and chronic mental illness. Use of the stress-vulnerability framework can provide a model to understand the disorder of schizophrenia. Emphasis should be placed on the importance of client education about schizophrenia as a nursing intervention to support or enhance recovery and to counter a belief in luck as controlling one's health. Discussions about chronic mental illness should identify hardiness as a potential characteristic and a strength of some

individuals with schizophrenia, specifically those with a higher level of function. An identification and explanation of the elements of hardiness in a health-specific context, a sense of control and a commitment to the challenge of managing chronic illness, may also contribute to the students' understanding of chronic mental illness.

Recommendations for Future Research

Based on the findings of this study, the following recommendations for future nursing research are suggested.

Replication of the present study utilizing the subscales of the Self-Efficacy Scale for Schizophrenic-Spectrum Disorders (SES) as individual variables could further clarify the role of perceived self-efficacy in recovery from schizophrenia. Using the positive symptom subscale and the negative symptom or social subscale as individual predictors might also provide clarification of the use of the SES itself in a non-intervention study (B. E. McDermott, personal communication, June, 1992 & Oct., 1994). It may also add to an understanding of the role of internal locus of control in recovery in individuals with schizophrenia.

Use of the SES as a pre and post-test measure of recovery in schizophrenia after specific interventions focusing on patient education about schizophrenia is suggested. Such a study could investigate the impact of specific interventions on the client's level of self-efficacy and level of function. Use of both short and long term follow-up in a longitudinal

design might also be helpful in determining a need for booster educational interventions to help maintain recovery.

Qualitative research on the clients' views of how recovery in schizophrenia is defined and what recovery encompasses is also recommended. Identification of a holistic framework for the concept of recovery requires the client's perspective. Rather than the health professional's view as a point of departure for studying recovery as a phenomenon, the client's view could provide unique insights and parameters for further exploration and intervention.

Research on friendships in clients with schizophrenia, through both qualitative and quantitative methodologies, is recommended. Specific areas for focus might include: (a) how and with whom clients currently develop friendships; (b) client's definition of friends and friendship; (c) specific needs identified by clients in regard to opportunities for development of friendships within and outside of the mental health system. Such studies could be utilized as a basis for understanding the lives of individuals with schizophrenia and enhancing their quality of life.

Investigation of the role of volunteer work versus salaried work as a factor in recovery for clients with schizophrenia is another area for study. More subjects in the current study were involved with volunteer work than with salaried employment. The Level of Function Scale includes work as a specific component of recovery. For the individual with chronic mental illness, volunteer work may provide a less

demanding work environment and may include many more levels of contribution to the work arena than salaried employment, even in sheltered settings. Research into the differences between these two types of work and their impact on recovery in schizophrenia could contribute to more productive interventions to support and enhance this area of recovery.

Investigation of the effect of nursing interventions that are oriented to the development of the elements of health-related hardiness is recommended with clients after an episode of schizophrenic illness. Interventions might include discussions of what health-related hardiness encompasses, identification of hardiness as a strength found in individuals with chronic physical and mental illnesses, and education about schizophrenia from a stress-vulnerability framework. Such a study might illuminate the role of health-related hardiness in clients' management of chronic illness and their recovery.

Summary of the Chapter

This chapter has summarized and discussed the findings of the present study, identified specific implications supported by these findings, and presented recommendations for further study.

Appendix A

Multidimensional Health Locus of Control Scale

PLEASE NOTE

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**Apx A - D
pgs. 119 - 135**

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Appendix E
Demographic Data Form

Demographic Data Form

1. Gender: 1. _____ Female 2. _____ Male (4)
(please check)

2. Race/ethnic background: 1. American Indian _____ (5)
(please check) 2. Black _____ 3. White _____
4. Asian _____ 5. Hispanic _____
6. Other _____ (list)

3. Age: _____ years old (6-7)

4. Marital status: 1. Never married _____ 4. Divorced _____ (8)
(please check) 2. Married _____ 5. Widowed _____
3. Separated _____

5. Highest grade completed in school: _____ (9-10)
(For example, high school= 12, grade school= 8)

6. Living situation: (check the ones that apply) (11)

- 1. Alone _____ yes _____ no
- 2. Boarding home _____ 5. House/own apartment _____
- 3. Community housing (CRAS) _____ 6. Shelter _____
- 4. Group home _____

If with family or friends, please list with whom
(for example, spouse; partner; sister; son and daughter;
friend)

_____	_____
_____	_____
_____	_____

7. Friendships outside of family (within the past 6 (12)
months): (please check)

- 1. _____ Meet at least once a week
- 2. _____ Meet about once every two weeks
- 3. _____ Meet about once a month
- 4. _____ Meet only at work, day program, or school
- 5. _____ Do not meet with friends

Code No. ____ (1-3)

8. Friendships outside of family: (13-14)

Number of friends _____

List _____

How do you know them? _____

Number of months/years you have known them:

Best friend _____ Other friends _____

How often do you see them (every day, every week?)

Best friend _____ Other friends _____

9. Work/occupation: (please check all appropriate, (15)
over past 6 months)

Do you work outside the home? ____ yes ____ no

1. Retired _____ 3. Volunteer work _____

2. Student _____ 4. Housewife _____

Work for pay: 5. Sheltered workshop _____ 6. Other job _____

Occupation (please list) _____

How long have you worked at your present job? _____

What was your job before your last hospital
admission?

_____ (please list)

10. Income from: (please check all that apply) (16)

1. Job (salary) _____ 4. Public assistance _____

2. SSI _____ Other disability _____

3. Other _____ (please identify; for example, from
family)

11. Yearly household income: (please check) (17-18)

1. None _____ 7. \$25,000-29,999 _____

2. \$1-4,999 _____ 8. \$30,000-34,999 _____

3. \$5,000-9,999 _____ 9. \$35,000-39,999 _____

4. \$10,000-14,999 _____ 10. \$40,000-44,999 _____

5. \$15,000-19,999 _____ 11. \$45,000-49,999 _____

6. \$20,000-24,999 _____ 12. \$50,000 and above _____

Code No. _____ (1-3)

12. Medications prescribed: _____ (19)
(please list) _____

13. I know that taking medications as prescribed (20)
can be very difficult for many people. How much
were you following the dose/time directions given
to you by your doctor? (please check)

1. All of the time _____ 4. Rarely _____ (10%)
2. Most of the time _____ 5. Never _____
3. Some of the time _____

14. Most recent psychiatric hospital admission _____
Other hospitalizations over past 6 months (21)

1. None _____
(please list month and year of each)

2. _____

15. Number of total times in psychiatric hospital _____ (22-23)

16. Date of your first time _____ (year) (24-25)
Age at that time _____ in the hospital

17. Total cumulative time spent in hospitals (26-27)
(months, years) _____
of admissions >3 months _____ (28-29)

THANK YOU FOR YOUR HELP WITH THIS QUESTIONNAIRE

Appendix F
Consent to Participate in Research



THE CATHOLIC UNIVERSITY OF AMERICA

School of Nursing
Washington, D.C. 20064
202-319-5400

CONSENT TO PARTICIPATE IN RESEARCH

Name of Study: The Relationship between Health Locus of Control, Perceived Self-Efficacy, Hardiness, and Recovery in Schizophrenia

Investigator: Anne W. Bender, MSN, RN

Supervisor: Jane H. White, DNSc, RN,CS

Phone Number: Anne Bender [REDACTED]

- I. Description and purpose of the study. In order to fulfill the requirements for a doctoral dissertation, Anne Bender, a doctoral candidate in nursing at The Catholic University of America, is conducting a research project to study whether various personality characteristics influence recovery in schizophrenia. This study will involve questions on views about important health-related issues and on dealing with situations relevant to an illness like schizophrenia.

- II. Description of the procedure. I understand that I will first be interviewed by Anne Bender to provide information for a demographic data form about my age, marital status, living situation, ethnic background, education, occupation, income, prescribed medications, and hospitalizations for mental health. During the interview I understand that I will also be asked to answer questions about my level of functioning over the past six months. This will include topics like time spent in the hospital, my friendships/social relationships, employment or other work, symptoms of mental health problems, and ability to take care of myself. Anne will then ask me to fill out three questionnaires. Two of the questionnaires will be about

the way I view certain important health-related issues, and the third will be about how I rate my abilities to handle social situations and to manage behaviors sometimes related to schizophrenia. I will be given the opportunity to ask questions about any of the items I do not understand. Participation in this research will take about one hour of my time.

- III. Risks, inconveniences. I understand that there is minimal potential for discomfort and emotional distress associated with completing the questionnaires and interview. I also understand that anxiety could occur because of the personal nature of some questionnaire items and interview questions. Should I become too anxious I can choose to stop participation in the study. Anne, an experienced psychiatric nurse, will be present to help me deal with these feelings and lessen my anxiety, or if necessary, will inform the Health Care Provider of difficulties.
- IV. Benefits of the study. Through participation in this research I may be able to benefit by learning more about myself and increasing my own sense of self-awareness. There is the possibility that I may be able to contribute to knowledge about recovery in schizophrenia, so that other patients may benefit in the future.
- V. Confidentiality. I understand that any information I provide will be kept strictly confidential. Records will be coded by number instead of name, by the investigator, Anne Bender. During the study Anne will keep the records in a locked box. Records and data will be looked at only by Anne Bender, the investigator. Consent forms will be kept separate from data. Anne will utilize my name and/or address, with my permission, only to contact me. I understand that after the information for the study has been completed, any records of my name and/or address will be destroyed. I also understand that information obtained in this study about me will not be reported to the treatment staff.
- VI. Right to withdraw. I understand that participation in this research project is strictly voluntary, and that I may refuse to participate or discontinue my participation at any time without fear of reprisal, loss of benefits, or the withholding of any treatment to which I am entitled.

I understand that any information about me obtained as a result of participation in this research project will be kept as confidential as legally possible. I understand that my research records, just like hospital records, may be subpoenaed by court order or may be inspected by federal regulatory authorities.

I have had an opportunity to ask any questions about the research and/or my participation in the research project, and these have been answered to my satisfaction.

I have received a signed copy of this consent form.

I volunteer to participate in the above study.

Study Participant's signature

Investigator's signature

Date

Date

Any complaints or comments about your participation in this research project should be directed to Secretary, Committee for the Protection of Human Subjects, Office of Sponsored Programs and Research Services, The Catholic University of America, Washington, D.C. 20064; Telephone [REDACTED]

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