

POWERLESSNESS, HEALTH BELIEFS, AND COMPLIANCE
IN ADULT DIABETICS

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The completion of this study signifies the end of a long journey. Like most journeys, the path has been lined with both roses and thorns. Long after the thorns are forgotten, the fragrance of the roses will remain. As with most precious fragrances, some of the blooms will remain nameless, but very crucial to the blending of the bouquet. Others, however, will forever stand out as unique roses providing the very essence of an unforgettable and lingering fragrance.

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IN ADULT DIABETICS

ABSTRACT

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The study tested relationships existing between health belief, generalized and situational powerlessness, and compliance in adult diabetic clients. Forty-two diabetic adults, 25 to 74 years of age, constituted the available sample. Persons were either newly diagnosed or newly reclassified from Type II to Type I diabetes.

Powerlessness instruments developed by Seeman and Evans (1962) Roy (1977) were used to measure subjects' level of powerlessness. Population specific instruments for health beliefs and compliance were designed by the researcher for use in this study. Pearson product-moment correlations revealed significant correlations between powerlessness and compliance and powerlessness and health belief. No statistically significant relationship was found to exist between health belief and compliance.

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CHAPTER I

INTRODUCTION

However undeserved or unsolicited, health care systems are often perceived as having a sterile restrictive atmosphere conveying little respect for one's individuality. The health care system, and those professionals operationalizing its authority, are elevated to the status of the omnipotent by consumers, allowing little expression of power or uniqueness by the clients partaking of their beneficence. Clients often express their individuality through resistance and noncompliance, the only vehicles left to those feeling powerless. Physicians and nurses, dismayed with the lack of compliance exhibited by clients of all socioeconomic and educational backgrounds, have sought interventions which might interest the client in active participation in health care.

Health teaching, one such intervention utilized by health care providers hoping to assist clients to optimal wellness, is an essential component of nursing care. The goal of health teaching is to help clients learn to live life in the healthiest way possible (Redman, 1984). Concomitantly, learning, or the acquisition of knowledge,

which is exhibited by a desirable change in behavior (compliance) is the desired outcome of patient teaching (Redman, 1984). Health teaching, however, has not become the panacea it was expected to be. Clients remain noncompliant, seemingly indifferent to the teaching strategies employed or the knowledge they profess regarding their health state.

A variety of explanations is offered by clients for their noncompliant behaviors, but throughout the array of explanations one predominate theme can be found. Knowledge, clients attest, is only knowing, but knowing does not make it possible to impact on one's own health state. Clients express feelings of futility and hopelessness perceiving impotence in the face of illness. Such expressions of powerlessness, or the lack of control over one's destiny, have been documented and validated by behavioral scientists as a consequence of situations which deny one's unique needs and desires.

Caregivers are now beginning to view compliance as a multifaceted entity in which education remains only one facet by which a client might achieve optimal health, an avenue which by itself leads nowhere. Another facet of compliance evidenced in the expressions of clients themselves seems to be powerlessness. The intent of this

study was to explore any relationship which might exist between an individual's state of powerlessness and compliance to medical prescription.

Problem of the Study

The problem of the study was to determine if significant relationships exist between perceived powerlessness, health belief, and client compliance.

Rationale for the Study

Although the literature abounds with studies of compliance and the influence of locus of control (Strickland, 1978), divergent findings, as well as eclectic methods for determining compliance, have softened any impact such studies might have had on health care practices. Despite the significance of findings regarding situational powerlessness resulting from hospitalization and/or diagnosis of illness states, most studies fail to incorporate the influence of the client's perceived impact on his own health state.

The present study incorporated the influences of both powerlessness and health belief as factors affecting compliance in chronically ill clients. In addition, a realistic compliance instrument was operationalized and intended to further extend the scope of the study.

Powerlessness has been recognized as a nursing diagnosis indicative of maladaptive responses on the part of the health care client (Roy, 1976, 1984). Yet, few attempts have been made to validate its impact on client welfare. Not only was validation of the significance of powerlessness on patient compliance attempted in the current study, but support for Roy's theoretical constructs was established adding to the theoretical base of nursing. Previous studies related to Roy's Adaptation Model have failed to address adaptation from the aspect of powerlessness and compliance in chronic illness.

Contributions of this study, therefore, not only explicate the influence of health belief and powerlessness on compliance, but contribute to that growing body of knowledge supporting nursing theory.

Theoretical Framework

The theoretical framework for this study was based on Roy's (1976) description of powerlessness, Rosenstock's (1966) explanation of health belief, Reif (1975), and Miller's (1983b) explorations of chronic illness, and observations of compliance as explicated by Dracup and Meleis (1982), Clark (1979), and Becker (1974). Roy views the person as a biopsychosocial being composed of four adaptive modes which respond to alterations in integrity.

These alterations might be physiologic, psychic, or social and can be brought about by changes in one's internal or external environment (Roy, 1976).

Three influencing factors, or stimuli, affect one's integrity. The focal stimulus, that stimulus immediately confronting the individual and requiring an adaptive response; contextual stimuli, stimuli contributing to the behavior caused by the focal stimulus; and residual stimuli, those stimuli that are not easily substantiated and include attitudes, experiences, and traits (Roy, 1976).

One adaptive mode which responds to alterations brought about by the focal stimulus is the self-concept mode. Self-concept is composed of two basic components, the physical self and the personal self. Driever (1976) separated the personal self into yet three more components: that of the moral self, self-consistency, and self-ideal/self-expectancy. She further explained that self-ideal/self-expectancy is that part of the personal self which is concerned with what one expects himself to do or to be. Ideals and expectations guide the person's actions toward an identifiable goal.

Powerlessness, an adaptation problem affecting the self-ideal/self-expectancy aspect of the self-concept mode, occurs when the person, for any reason, has difficulty

achieving desired goals (Roy, 1976). The individual experiences a lack of control over events which are perceived as being an obstacle toward attaining set goals. Powerlessness as defined by Roy (1976) is the perception on the part of the individual of a lack of personal, or internal, control over events as a result of specific factors or stimuli.

Illness, or an alteration in the health state, was identified by Roy (1976) as an important focal factor leading to powerlessness. Contextual stimuli related to powerlessness might include the hospital setting, social displacement, and staff/patient relations, while the client's personality, age, economic status, and cultural background are included in residual stimuli affecting powerlessness. Individuals who have a strong belief in their ability to control their destiny through manipulation of the environment display a lesser degree of fatalism or malleability (Rotter, 1966). The concept of powerlessness, as described by Roy (1976, 1984), is based on findings of Melvin Seeman (1959) who described powerlessness as one of the alternatives of alienation. Seeman traced this concept of alienation back to the Marxian view of workers' conditions in capitalistic society and defined it as "the expectancy or probability held by an individual that his

own behaviors cannot determine the occurrence of outcomes" (Seeman, 1959, p. 784). In studies by Seeman and Evans (1962) and Grubbs (1968), hospitalized clients displaying behaviors indicating powerlessness scored lower on knowledge tests regarding illness states.

[Rosenstock (1966) introduced the Health Belief Model as an explanation of decisions individuals make regarding health behaviors. The model consists of several beliefs which must be possessed by the individual before the individual decides to take action; first, personal susceptibility to illness; second, severity of illness; third, benefit from the action taken; and lastly, the barrier to the action should not be too costly economically, physically, or psychologically.]

[Chronic illness is a state in which the client experiences an altered health state which cannot be cured with a short course of therapy or surgery (Miller, 1983b). Miller (1983b) further cited chronic illness as a condition in which a client experiences impairment in more than one body system and in which illness demands are never completely eliminated. According to Reif (1975) three factors can be identified in chronic illness. First, disease symptoms may interfere with routine activities, second, interventions have limited effectiveness, and,]

lastly, the treatment itself can disrupt one's life. A prevalent theme of chronic illness identified by Miller (1983b) was a sense of lack of control over one's life and body. She further stressed that knowledge and insight into one's chronic illness affords the client some portion of control over the disease state.

Health teaching has become an essential component of nursing care utilized by health care providers hoping to assist clients to optimal wellness. The goal of health teaching is to help clients learn to live life in the healthiest way possible (Redman, 1984). Compliance, defined by Dracup and Meleis (1982), as those behaviors and choices exhibited by the client that comply with the clinical prescription, might then be considered the desired result of health teaching. Recently, however, patient educators have begun to question the effectiveness of health teaching as a tool for securing compliance.

Although it has been documented that understanding regarding one's health state and prescription is essential for compliance to occur, studies have revealed that some clients, regardless of their knowledge and level of understanding, are simply not compliant (Clark, 1979; Davis, 1967). Clients must not only perceive benefit from health care measures but they must perceive that they have

control over events before they will become compliant (Becker, 1974; Kegeles, 1967).

Compliance, therefore, might be considered the product of one's perception of ability (powerfulness) or inability to take control over one's life or health practices (powerlessness), and the belief that specific actions are not only needed but desirable (health belief). Chronic illness, which evokes negative health beliefs and feelings of powerlessness over one's health state paradoxically necessitates one's adherence to clinical prescription (compliance). Concomitantly, health care providers are directed to explore further the concepts of powerlessness and health belief as vehicles for the enhancement of the health state of chronically ill clients.

Merging of Concepts

Gibbs (1972) asserted "theory is a set of interrelated statements in the form of empirical assertions about properties of infinite classes of events or things" (p. 5). A positivistic approach to theory construction is utilized characterized by three specific assertions. First, theories should be stated formally; second, that they should be testable; and, finally, that predictive power should be of primary concern. The two major divisions of theory are the intrinsic part made up of

statements in the form of empirical assertions and the extrinsic part composed of definitions of the intrinsic statements.

Substantive Terms

Concepts contained in the model include:

Powerlessness is "the perception, on the part of the individual, of a lack of personal or internal control over events within a given situation" (Roy, 1976, p. 224).

Generalized powerlessness is that trait concerned with the perception of powerlessness which remains fairly constant across situations (Roy, 1977; Seeman, 1975).

Situational powerlessness is that perception of powerlessness brought about by a specific life event (Roy, 1977; Seeman, 1975).

Health belief comprised of perceived barriers, benefits, severity, and susceptibility is the psychological aspect of decision-making concerned with an individual's decision about alternative health behaviors (Becker, 1974; Rosenstock, 1966).

Compliance is the extent to which an individual chooses behaviors that coincide with clinical prescription (Dracup & Meleis, 1982).

Referentials

Referentials contained in the model include lack of control (LKC), loss of control (LC), Barrier (BR), Benefit (BN), Severity (SV), Susceptibility (SS), preventative behavior (PB), maintenance behavior (MB), and responsive behavior (RB).

Each term is defined as follows:

LKC is an acronym for the general lack of control which is fairly constant. This lack of control can be physiologic, psychological, or environmental.

LC is an acronym for loss of control experienced when a person is confronted with a life event. This loss of control can be physiologic, psychological, or environmental.

BR is an acronym for barrier to action perceived by an individual which will deter one from taking a specific action.

BN is an acronym for benefit of action perceived by an individual which will persuade one to take a specific action.

SV is an acronym for severity of illness, or threat of illness, perceived by an individual which will persuade one to take a specific action.

SS is an acronym for susceptibility to illness or threat of illness perceived by an individual which will persuade one to take a specific action.

PB is an acronym for preventative behavior taken by an individual. Such behavior, on the part of a diabetic client might be skin care or blood sugar testing.

MB is an acronym for maintenance behavior taken by an individual. Such behavior on the part of a diabetic client might be administration of routine insulin or oral hypoglycemics.

RB is an acronym for responsive behavior taken by an individual faced with a specific "warning sign" or cue suggesting a deviation in health state.

Referents

The referents of this model are the Health-Illness Questionnaire (HIQ) measuring situational powerlessness, the Social Reaction Inventory (SRI) measuring generalized powerlessness, the Health Belief Model Inventory (HBMI) measuring health belief, and the Diabetic Compliance Survey (DCS) measuring compliance.

Unit Term

The unit term for this model is the person. Person is defined as any living human system.

Time Units

The time units in this model are T_0 and T_0+1 . T_0 represents some point in time while T_0+1 indicates 6 weeks after T_0 .

The intrinsic and extrinsic statements contained in the theory are depicted in Figure 1.

Intrinsic Statements

Proposition 1. Among persons the greater the generalized powerlessness, the greater the situational powerlessness.

Proposition 2. Among persons the greater the situational powerlessness, the lesser the health belief.

Proposition 3. Among persons the greater the health belief, the greater the level of compliance (Becker, 1974).

Proposition 4. Among persons, the greater the situational powerlessness, the lesser the compliance (Seeman & Evans, 1962; Roy, 1977).

Transformational Statements

Transformational Statement 1. Among persons, the greater the generalized powerlessness, the greater the lack of control.

Transformational Statement 2. Among persons, the greater the situational powerlessness, the greater the loss of control.

Transformational Statement 3. Among persons, the greater the health belief, the lesser the perceived barrier.

Transformational Statement 4. Among persons, the greater the health belief, the greater the perceived benefit.

Transformational Statement 5. Among persons, the greater the health belief, the greater the perceived severity of threat to one's health state.

Transformational Statement 6. Among persons, the greater the health belief, the greater the perceived susceptibility or threat to one's health state.

Transformational Statement 7. Among persons, the greater the compliance, the greater the preventative behavior.

Transformational Statement 8. Among persons, the greater the compliance, the greater the maintenance behavior.

Transformational Statement 9. Among persons, the greater the compliance, the greater the responsive behavior.

Theorems

Theorem 1. Among persons, the greater the LKC, the greater the LC.

Theorem 2. Among persons, the greater the LC, the greater the BR.

Theorem 3. Among persons, the greater the LC, the lesser the BN.

Theorem 4. Among persons, the greater the LC, the lesser the SV.

Theorem 5. Among persons, the greater the LC, the lesser the SS.

Theorem 6. Among persons, the lesser the BR, the greater the BN, the greater the SV, the greater the SS.

Theorem 7. Among persons, the greater the LC, the lesser, the PB, MB, and RB.

Theorem 8. Among persons, the greater the BN, SV, and SS, the greater the PB, MB, and RB.

Extrinsic Statements

Epistemic Statement 1. Among persons, the greater the LKC, the greater the SRI.

Epistemic Statement 2. Among persons, the greater the LC, the greater the HIQ.

Epistemic Statement 3. Among persons, the lesser the BR and the greater the BN, SV, and SS, the greater the HBMI.

Epistemic Statement 4. Among persons, the greater the PB, MB, and RB, the greater the DCS.

Hypothesis 1. There is no significant relationship between a client's level of situational and generalized powerlessness, as measured by the Health-Illness Questionnaire (HIQ) and Social Reaction Inventory (SRI), at the time of diagnosis.

Hypothesis 2. There is no significant inverse relationship between a newly diagnosed diabetic client's level of situational powerlessness and health belief.

Hypothesis 3. There is no significant relationship between a client's health belief and level of compliance.

Hypothesis 4. There is no significant inverse relationship between a newly diagnosed diabetic client's level of situational powerlessness, as measured by the HIQ, and level of compliance to clinical prescription.

Hypothesis 5. There is no significant difference between a client's level of generalized powerlessness at the time of diagnosis and scores obtained 6 weeks post diagnosis.

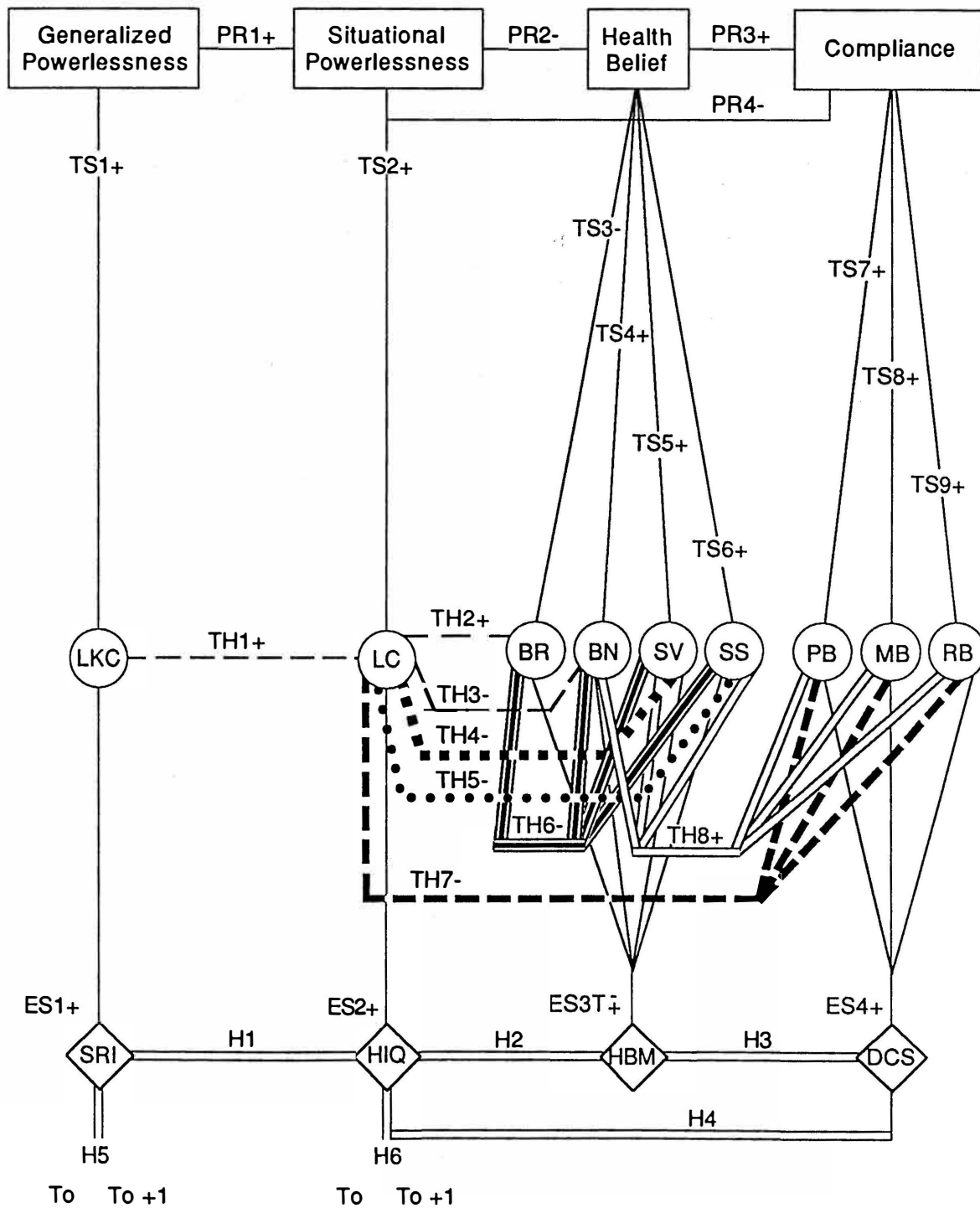


Figure 1. Model of generalized and situational powerlessness, health belief and compliance.

Hypothesis 6. There is no significant difference between a client's level of situational powerlessness at the time of diagnosis and 6 weeks post diagnosis.

Assumptions

The following assumptions undergirded the study:

Ideological

1. Powerlessness is an adaptation problem experienced by some clients who are ill or hospitalized (Roy, 1984).
2. Persons have a need for psychic integrity (Roy, 1984).
3. Persons possess beliefs related to the efficacy of health behaviors (Becker, 1974).

Procedural

1. Powerlessness can be assessed by a paper and pencil test.
2. Health belief can be assessed by a paper and pencil test.
3. Compliance can be assessed by client self-report by means of a researcher developed paper and pencil instrument.
4. Economic and supportive resources sufficient for compliance are available for all subjects.

Hypotheses

The hypotheses derived from the propositional statements were:

1. There is no significant relationship between a client's level of situational and generalized powerlessness, as measured by the Health-Illness Questionnaire and Social Reaction Inventory, at the time of diagnosis.
2. There is no significant inverse relationship between a newly diagnosed diabetic client's level of situational powerlessness and health belief.
3. There is no significant relationship between a client's health belief and level of compliance.
4. There is no significant inverse relationship between a newly diagnosed diabetic client's, level of situational powerlessness as measured by the Health-Illness Questionnaire and level of compliance to clinical prescription.
5. There is no significant difference between a client's level of generalized powerlessness at the time of diagnosis and scores obtained 6 weeks post diagnosis.
6. There is no significant difference between a client's level of situational powerlessness at the time of diagnosis and 6 weeks post diagnosis.

Definition of Terms

1. Powerlessness--is "the perception, on the part of the individual, of a lack of personal or internal control over events within a given situation" (Roy, 1976, p. 224).
2. Generalized (trait) powerlessness--is that trait concerned with the perception of powerlessness which remains fairly constant (Roy, 1977; Seeman, 1975).
3. Situational powerlessness--is that perception of powerlessness brought about by a specific event or stressor (Roy, 1977; Seeman, 1975).
4. Health belief--is that psychological aspect of decision making comprised of perceived barriers, benefits, severity, and susceptibility and concerned with an individuals decision about alternative health behaviors (Becker, 1974; Rosenstock, 1966).
5. Compliance--is the extent to which an individual chooses behaviors that coincide with clinical prescription (Dracup & Meleis, 1982).
6. Client--is any adult 25 years or older who has been newly diagnosed, within the past 6 months, as having diabetes mellitus or has been within the last 6 months reclassified from Type II (non-insulin dependent) to Type I (insulin dependent) diabetes.

7. Newly diagnosed diabetic--includes individuals diagnosed with diabetes mellitus within the last 6 months or reclassified from Type II to Type I diabetes within the last 6 months.

Limitations

The methodological limitations of this study included:

1. Generalization of the results to a larger population are hampered contingent on the convenience sampling technique employed by the researcher.
2. The Diabetic Compliance Survey has limited validation and reliability.
3. The nature of the data collected limits its significance as an interval measurement.
4. Inclusion of subjects who score high on the Marlowe-Crowne Social Desirability Scale may affect conclusions of the study.

Delimitations

The delimitation for this study was:

Only newly diagnosed or reclassified diabetic clients 25 years or older were selected, limiting the scope to clients of like characteristics.

Summary

Although compliance has been identified as that phenomenon necessary for chronically ill clients to attain optimal health, it remains an elusive, immeasurable entity just beyond the client's grasp. Interventions utilized by health care providers in the past seem superficial and ineffective when interfacing with the chronically ill. Researchers such as Seeman, Roy, Rosenstock, Becker, Dracup and Meleis, and others suggest that there are facets of compliance in chronically ill clients which are not addressed in traditional explanations. This study explored two such facets, powerlessness and health belief, and describes how they might be related to compliance in the chronically ill.

CHAPTER II

REVIEW OF LITERATURE

The population of Americans living with chronic illness has escalated with modern technological and health advances. Chronic illness has a sustaining affect on the client's existence impacting on all aspects of life. Since the demands of illness are never completely abolished, clients must cope with their health state outside the acute care setting. Clients find it necessary to follow a prescribed therapeutic regimen in order to limit manifestations of their illness. Health education, the major intervention to secure compliance, has not proved effective in promoting compliance in two thirds of clients with chronic illness (Redman, 1984). Powerlessness has been identified by theorists as a condition in which clients find they have little or no control over their health state and too little interest in learning health behaviors (Roy, 1976, 1984). Health belief, one's perceived vulnerability and perceived benefits, also impact on one's willingness to remain compliant (Becker, 1974; Kirscht, Haefner, & Kegeles, 1966). Considering the extent to which the health state of chronically ill clients is dependent on compliant behaviors, exploration into the

impact powerlessness and health belief have on compliance may be inherent to developing interventions to enhance compliance in chronically ill individuals.

Specific concepts germane to this study and discussed in this chapter include: powerlessness/locus of control, health belief, compliance and chronic illness.

Powerlessness

Seeman (1959), in close conjunction with Julian Rotter and Shepard Livant, explicated the concept of alienation specifying five basic variants or subconcepts of the construct. Powerlessness, one such subconcept, was identified by Seeman (1959) as "the expectancy or probability held by the individual that his own behavior cannot determine the occurrence of the outcomes or reinforcements he seeks" (p. 784). Seeman's definition was derived from earlier works of Marx, Weber, and C. Wright Mills. Seeman stresses his use of powerlessness centers on an individual's expectancies or perceptions of his capacity to influence and is very closely related to Rotter's internal versus external locus of control. He stresses, however, that the two concepts are not interchangeable (Seeman, 1959).

The significance of powerlessness behavior was emphasized by Seeman and Evans (1962) in a study relating

alienation, specifically a person's sense of powerlessness, to the acquisition and use of knowledge. The subject's knowledge and behavior exhibiting knowledge were compared to their powerlessness scores to determine any influence a hospitalized person's generalized powerlessness might have over his learning. Both paper and pencil test and empirical observations of 86 subjects revealed lower levels of knowledge in clients displaying higher levels of powerlessness, $t = 2.216$, $p = .05$. Highly alienated clients also complained more about the lack of information with which they were provided (Seeman & Evans, 1962). The researchers theorized that persons with lower states of powerlessness were more satisfied with the information provided as a direct result of their own information seeking activities.

Seeman further attempted to link powerlessness to learning in a series of studies both in the United States and Sweden. Inmates in a reformatory scoring lower in powerlessness learned control relevant information more successfully than inmates displaying high powerlessness (Seeman, 1963). Noncontrol-relevant information, or information regarding things inmates perceived as beyond their control was not influenced by the inmates' levels of powerlessness. Manual and non-manual workers in Sweden who

scored high on a powerlessness instrument scored significantly lower on a political knowledge questionnaire (Seeman, 1966). A 1967 (Seeman) study of 343 Swedish university students supported Seeman's (1963) earlier assertion that powerlessness and knowledge acquisition are discriminant for control-content types of information. The study, however, lacked significant findings related to powerlessness and avoidance behaviors. Students were assessed for correlations between their level of powerlessness and their survey return rates and scores on nuclear, cultural, and political tests. Findings dealt with generalized powerlessness rather than situational specific powerlessness which may account for the lack of significant results related to avoidance behaviors. Powerlessness was examined by Seeman (1972) in relation to knowledge seeking behavior on the part of 400 workers previously measured for powerlessness. Through this study Seeman strove to document the utility of the concept alienation and specifically powerlessness. Seeman found that if highly alienated, powerless, workers were offered access to information which could improve their work situation, they would choose that information less often than workers with lower levels of powerlessness. The study also found that work alienation and powerlessness are two

distinct variations of alienation and work independently and often inversely from one another (Seeman, 1972).

Learned helplessness, a term very similar to Seeman's definition of powerlessness, can be found in psychological literature. This concept postulates that when individuals are presented with uncontrollable events, their expectations regarding their lack of control over the event causes them to become helpless not only in that event but in future events which may or may not be beyond their control (Seligman, 1975). A study by Alloy and Abramson (1982) with depressed students found that those students who perceived they had control over an event acted upon that perception regardless of their state of depression or their potential for success, $F(1, 64) = 3.97, p = .051$. Concomitantly, students lacking the illusion of control remained reluctant to act. Raps, Peterson, Jonas, and Seligman (1982) explicated reactance behaviors in patients who were hospitalized and found their control over events was diminished. The intent of the study was to explore two patient roles; one of the "good patient" or the passive patient exhibiting learned helplessness and the other; of the "bad patient" displaying psychological reactance, the attempt to restore control or freedom as a reaction to loss of control. Findings revealed that the longer patients

remained in the hospital the greater degree of learned helplessness and decreased problem solving was evidenced $F(3, 56) = 46.18, p < .001$. No evidence however, was obtained to support psychological reactance as a response to hospitalization, possibly indicating reactance may be a later response to loss of control. Reactance, in a study of psychology students, was found to enhance performance while helplessness made subjects feel and react less competently, $t(161) = 5.35, p < .001$ (Brockner et al., 1983).

Locus of Control

Although not totally interchangeable the concept of locus of control as explicated by Rotter (1966) is directly related to powerlessness (Miller, 1983a). Seeman along with Livant assisted Rotter in refining his original internal versus external instrument (Rotter, 1966). Furthermore, Rotter reviewed Seeman's earlier studies (Seeman & Evans, 1962; Seeman, 1959, 1963) as support for his locus of control variables. Differences in the two concepts, though minimal, seem to lie in the derivation of the attribute powerlessness. Situational powerlessness is variable and determined by particular events (Miller, 1983a; Roy, 1977) while locus of control attributes are fairly stable and conceptualized by some as a personality

trait (Miller, 1983a). Rotter's prolific writings along with the plethora of research using derivations of his original locus of control instrument have provided a wealth of information which is readily and appropriately applicable to powerlessness exploration.

Rotter (1966) acknowledged that as reinforcement tends to strengthen one's expectancy that same reinforcement will follow similar actions or behaviors in the future. Persons displaying externality tend to perceive reinforcement as outside their control and dependent on chance or powerful others while internal locus of control subjects perceive themselves as being able to elicit specific reinforcements through their own actions.

Smith (1979) attempted to link life crises resolution with changes in locus of control orientations and observed that persons in crisis were temporarily overwhelmed and perceived themselves as powerless, but as resolution occurred powerlessness decreased or the person became more internally oriented ($t = (23) 2.87, p < .01$).

Health Locus of Control/ Health-Related Powerlessness

Wallston and Wallston, along with Kaplan and Maides (1976) in an attempt to develop a more sensitive locus of control instrument for health related situations modified

Rotter's instrument producing the Health Locus of Control scale.) Health locus of control studies of 88 college students found those persons highly internally oriented and who valued health sought more health information in the form of health pamphlets than externally oriented subjects processing high values for health, $t(80) = 1.84$, $p < .04$ (Walston et al., 1976). A second study (Kaplan, 1974) of overweight women assigned to either internally or externally oriented weight reduction programs supported the Health Locus of Control scale as sensitive to situation specific locus of control. Boyle and Harrison (1981) in a study of 456 veterans discovered that the Health Locus of Control scale was bi-dimensional indicating internal and external orientations.

Health locus of control orientation has been correlated with information seeking in the form of obtaining health pamphlets by DeVito, Bogdonawicz, and Reznikoff (1982). Although the researchers wished to make a distinction between intended and actual health related information seeking they were only able to validate higher information seeking on the part of internals with high health values regardless of intent or actual categories ($x = 7.10$ and 6.06 , $p < .01$). Lau (1982) explored origins of health locus of control beliefs and found they were

related to earlier sickness experiences supporting beliefs that locus of control orientations are fairly stable and develop early in life.

Not only has locus of control been utilized for numerous health and medical related studies, but nurses and related health care professionals have been involved in a variety of investigations in which locus of control and powerlessness have been the focus of attention. Muklenkamp and Nelson (1981) studied participants in a weight reduction program to determine if the Multidimensional Health Locus of Control scale along with a value scale could predict health behavior. The researchers used the locus of control instrument refined from Walston's scale by Levinson which distinguishes not only between internality and externality, but between externals concerned with powerful others and those influenced by chance. Results revealed that participants with a high value in health and a high belief in powerful others weighed in more often ($t = 1.80, p = .08$) than subjects with opposite scores. Gierszewski (1983) examined weight-loss, locus of control, and social support finding internally oriented subjects lost less weight than external, powerful others, or external chance participants. The researchers concluded that a combination of internality and externality might be

beneficial since some internality would allow persons to believe they can take control of their weight and externality would allow them to take suggestions from professionals, powerful others, even if weight loss did not immediately follow efforts.

Laffrey and Isenberg's (1983) research revealed no significant relationship between leisure physical activity, internality ($r = 0.10$, $p = .05$), and health value ($r = 0.07$, $p > .05$). Explanation was offered suggesting that people participating in exercise as part of leisure activity may not perceive it as part of health related activity substantiating earlier assertions that specific tools are needed to test locus of control under different circumstances.

Disadvantaged black youth more internally oriented were found to have higher knowledge scores than external students in a study by Riggs and Noland (1984). Female external students were found to have higher health behavior scores than male external students, perhaps indicating they are influenced more readily by powerful others who might be encouraging health behaviors.

Arakelian (1980) evaluated the concept of locus of control as a concept on which to build a theoretical framework for nursing practice. The scholar supported the

utility of the concept by citing a wealth of studies in several disciplines utilizing locus of control as a construct. Powerlessness, externality, was reaffirmed by Arakelian as a variable effecting compliance. Disease specific, or situational specific, tools were encouraged as a means to secure more sensitive and discriminate results.

Health locus of control has been specifically correlated with compliance in a variety of studies (Shillinger, 1983). A large portion of these studies have been in psychology, but the author contended, however, that locus of control has implications for clinical practice, particularly related to patient education and compliance. The author suggested that locus of control may be a significant determinant of self-care agency as presented by Orem (1971) or feelings of hopelessness in chronically ill clients as explained by Arakelian (1980). Shillinger further illustrated the use of locus of control in clinical practice by presenting two case studies where internality/externality or powerlessness was manipulated in an attempt to elicit compliance.

Lowery and DuCette (1976) investigated the relationship between learning and locus of control in newly diagnosed diabetics. Subjects showing greater internality learned more information than external subjects and scored

significantly higher on control related questions. Internal diabetics were also found to have fewer disease related problems after three years. However, the incidence of problems after six years was greater among internally oriented diabetic subjects, $F(1,56) = 7.87$, $p < .01$, suggesting that without reinforcement or evidence of control they tend to discount health related activities. Another study by Gotch (1983) attempted to correlate locus of control to compliance in insulin dependent diabetics. The study used a small convince sample of 20 adults and contributed no significant data to past studies.

Research conducted by health care professionals and examining the concept of powerlessness are less plentiful but undeniably related to locus of control studies. Johnson (1967) supported powerlessness as a determinant of patient behavior encouraging studies scrutinizing the concept's effect on various aspects of client behavior. Alienation, powerlessness, was found to increase significantly overtime in hemodialysis patients (O'Brien, 1980) while Stapleton (1983) cited powerlessness of clients in chronic illness encouraging health care practitioners to study the concept and implement strategies for its reduction.

Health Belief Model

Rosenstock (1966) introduced the Health Belief Model as an explanation of decisions individuals make regarding health behaviors. The model developed from research by several investigators working for the Public Health Service some 10 years earlier (Kirscht, Haefner, Kegeles, & Rosenstock, 1966; Rosenstock, 1974a). Maiman and Becker (1974) compared the Health Belief Model to Rotter's reinforcement theory indicating their similarity.

Early studies did not include motivation which is now considered part of the model. An early study (Kirscht et al., 1966) examined health beliefs of over 1,000 adults and their beliefs regarding cancer, tuberculosis, and dental disease and served as impetus for further studies by health care workers. The Health Belief Model originally developed to predict preventative health behavior (Rosenstock, 1974b; Maiman & Becker, 1974) or actions one takes to be healthy, has been utilized by medicine and dentistry to determine preventative health actions. Rosenstock (1974b), however, acknowledged that using the model negates a large population of subjects who are motivated to take action because of television, social pressures, or the occurrence of symptoms. Like the Health Locus of Control model conflicting results are reported in numerous studies

(Haefner, 1974) calling for more rigorous testing of the model.

In a more recent study by a nurse researcher (Hallal, 1982) health belief and locus of control were significantly correlated with self breast examination with the best predictor of self breast examination being the "perceived benefits" subscale of the health belief instrument and external, "powerful others" orientation of locus of control. Subjects practicing self-breast examination were less dependent on a "powerful other" ($F = 1,71, p < .05$). One hundred seventy-five clients of a nursing clinic were found to have no significant relationship between health care beliefs and self-care activities (Muhlenkamp, Brown, & Sands, 1985). The same study, however, found subjects with higher mean scores for "powerful others" weighed in more often than subjects with lower scores for "powerful others" ($t = 1.80, p = .08$).

Sick behavior, consisting of behaviors directed at getting well by persons who consider themselves ill, (Becker, 1974) has been examined as an explanation for compliance behaviors. Becker (1974) suggested that a person's health behavior in relation to sick behavior, compliance, may be altered to increase compliance. A person according to Becker must believe in the probability

of recurrence and that illness will cause serious repercussions before he will act. Compliance, Becker further maintained, will not occur unless the client perceives the health behaviors as helpful.

Illness behavior concerns the state between wellness and sickness (Kirscht, 1974) and includes seeking help without delay when symptoms appear. Also included in the behavior are non-medical health practices such as home remedies and nonprescription treatments. Persons feeling alienated or powerless, according to Kirscht, fail to act or seek care when faced with illness.

In an attempt to develop a scale to measure health belief of diabetics Given and colleagues (1983) used factor analytic techniques to develop basic concepts unique to health belief in diabetic subjects. The instrument was tested with two separate samples suggesting stability. The researchers advised that other such scales cannot be used to label subjects as high or low health belief but should be examined in relation of one score to another numerical score. Comparisons of specific items across two groups or two points in time was suggested when using such instruments.

Jantz and Becker (1984) did a comprehensive review of the Health Belief Model over a 10-year span. Data compiled

concerning health belief and diabetic regimen revealed perceived severity as a significant element in explaining differences in levels of adherence to prescription. In the same review studies concerning sick-role behavior, which has been linked with chronic illness behaviors, "perceived barriers" was found to be the single most significant behavior in the studies analyzed while "perceived severity" became second most important behavior for clients diagnosed as ill.

Chronic Illness

Kassebaum and Baumann (1965) viewed chronic illness as a variation of the sick role which is not temporary and in which motivation to get well is inappropriate. Performance of role is usually partial or decreasing in scope. The chronically ill client becomes alienated and dependent. During an investigation of 201 persons with diagnoses of chronic illness the researchers found that chronically ill individuals identified four dimensions of their sick role: dependence, reciprocity, role performance, and denial. Diabetic subjects in the study displayed lower scores in all four areas, possibly because they are given some autonomy over controlling their disease incurring less threat and greater potential for compliance. Several other studies, however, reported poor compliance among diabetic

clients which increases over time regardless of their knowledge (Kasl, 1974; Lowery & DuCette, 1976). Kasl (1974) questioned where chronic illness fits in relation to the Health Belief Model. He maintained that the sick role concerns passage through acute illness and has little relevance for chronic illness. Health behavior negates the presence of symptoms while illness behavior consists of symptoms which may motivate the person to seek help. Each classification, according to Kasl, is inadequate by itself to describe chronic disease. With chronic illness there are aspects of "at risk" status and actions to be taken as preventative measures as with preventative health care or wellness behavior. Yet sick role behaviors consisting of withdrawal from specified roles are present along with illness behaviors of self care measures utilized without medical consultation. Kasl suggested that when studying compliance in chronically ill clients, the Health Belief Model may need to be supplemented with designs concerned with coping and defense mechanisms which affect compliance.

An examination of 44 cardiac patients' adherence to exercise regimes revealed a higher belief in severity and susceptibility among those with higher levels of adherence, $r = 0.37$, $p < 0.02$ (Holm, Fink, Christman, Reitz, & Ashley, 1985). The researchers suggested that health belief may

also change with compliance. The same study showed no significant data concerning locus of control and exercise adherence.

In a review of studies concerning health belief and adherence in chronic illness Redeker (1988) concluded that further investigation is needed to determine whether adherence behavior differs in clients experiencing symptoms, if health belief remain stable over time, and if health belief differs with length of diagnosis.

Compliance

Studies on compliance are understandably most often concerned with adherence to prescription by clients experiencing chronic illness. Marston (1970), in a review of studies concerned with compliance, found that compliance was defined operationally by each researcher lacking a precise objective meaning. Owing to the ambiguity surrounding the definition of compliance measurement has presented unique and irreconcilable problems. Marston discovered compliance studies to encompass health belief, locus of control, demographic and psychosocial variables as well as a multiplicity of measurement practices including pill count, laboratory tests, self-report, physical examination, and observations.

Blackwell (1973) examined patient drug therapy compliance and found that paramount to compliance was a patient's understanding (belief) regarding his illness and the need for therapy and the consequence of each. Maternal compliance in immunization was found by Rosenblum, Stone, and Skipper (1981) not to be significantly related to perceived vulnerability. The researchers were unable to discern any significant difference, $F(1,87) = 1.09$, $p = 0.77$, between internal locus of control and compliance. Witt (1981) discovered that locus of control orientation did not influence 33 psychiatric patients' medication compliance while health belief did affect medication compliance. Education, although not statistically significant, was found to have a positive effect on compliance. The probability of compliance in diabetes, hypertension, and pulmonary disease clients was explored by Nagy and Wolfe (1984) using variables from health locus of control and the Health Belief Model. Subjects who were externally oriented toward powerful others were found to be more likely to follow suggestions from health care professionals. Significant findings correlating the health locus of control scale to compliance, however, were nonexistent. No association between health belief and compliance was possible due to the high sample of subjects

who strongly endorsed high health values. Medical regimen adherence was found significantly related, $r = .212$, $p < .01$, to a person's attitude and perceived beliefs toward the clinical prescription (Miller et al., 1985). Attitudes and beliefs of significant others were also observed to influence compliance.

Summary

The concepts of trait or generalized powerlessness and locus of control are tightly linked in literature. No specific identification or measurement of situational powerlessness has been explicated by Rotter and others studying locus of control. Although Seeman and associates as well as some nurse researchers have linked powerlessness with learning, information seeking and decision making studies validating a relationship between powerlessness and compliance are nonexistent. Those that have attempted to validate such a relationship failed to distinguish trait powerlessness from situational powerlessness.

Health belief models have been identified for preventative, help seeking and compliant behavior but these models have not been compared to the two states of powerlessness identified by Seeman.

Diabetes mellitus does meet the criteria for a chronic illness reinforcing the precept that such clients feel

alienated and cannot be motivated by rewards of becoming "well". Studies of compliance in diabetic subjects have produced conflicting results probably confounded by the fact that compliance has remained an ambiguous and sometimes immeasurable variable.

CHAPTER III

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

The method for this study was descriptive. The purpose of descriptive research is to systematically and accurately describe situations or variables, or compare groups in relation to a specific dependent variable (Issac, 1979; Shelley, 1984). Descriptive studies make comparisons or correlations between variables within the study (Issac, 1979).

A correlation design was employed for this study. Correlation designs determine the extent to which variables are related or how they systematically vary together (Issac, 1979; Shelley, 1984; Waltz & Bausell, 1981). Correlation describes the strength of relationship between scores on one measure and scores on another measure among a single group of subjects (Shelley, 1984). Pearson-product moment correlation is used to describe the relationship between a single metric independent variable and a metric dependent variable (Issac, 1979; Shelley, 1984; Waltz & Bausell, 1981).

Descriptive methods are appropriate when the researcher is concerned with describing an event or

phenomenon and making no attempt to control or modify the situation. Correlational does not imply causation, but merely describes and is conducted in a natural setting (Waltz & Bausell, 1981).

Setting

The setting for the study consisted of acute care hospitals, home health agencies, diabetic outpatient clinics, diabetic support groups, and diabetic teaching programs located in a variety of metropolitan areas of a southwestern state. Although each site provided health care for both newly diagnosed diabetics and clients with long-standing diagnosed diabetes mellitus only newly diagnosed Type I or Type II diabetics.

Diabetic education and assistance in locating and obtaining resources for health maintenance was an intricate part of each site's practice. Each site provided services via a multidisciplinary approach. Clients using the facilities resided in either the immediate metropolitan area or rural settings as far as 150 miles away.

Each site was air-conditioned, well lit, and had areas for sitting and talking with staff or other clients. The personnel in the facilities were accustomed to research since they provided specialized care/support for clients with diabetes mellitus, and most were participating in

ongoing research within the institution. The sites served as clinical practice sites for large teaching centers located within the cities.

Population and Sampling

Availability sampling technique was used to identify the study group. The study population for this study was adults, 25 years or older, newly diagnosed as having diabetes mellitus or newly reclassified from Type II to Type I diabetes. The availability sample was selected by obtaining prospective subjects from acute care hospitals, outpatient diabetic clinics, support groups, diabetic teaching programs, home health agencies, and individual physician referral. Each potential subject was then approached individually for inclusion in the study.

Availability sampling is the most common of the nonprobability sampling techniques (Shelley, 1984; Polit & Hungler, 1983). When the research population consists of individuals within a specific criteria who may be difficult to obtain, availability sampling affords the researcher the ability to use all available subjects (Polit & Hungler, 1983; Kerlinger, 1973). Random samples are also very costly, making convenience sampling attractive to researchers with limited means (Kerlinger, 1973). Nonprobability samples are the most frequently used

techniques for nursing research (Polit & Hungler, 1983). The sample for this study was comprised of 42 subjects. It is acknowledged that a larger sample might reveal different results. Caution must be asserted, however, not to draw generalizations from the results which include populations outside the target population (Polit & Hungler, 1983).

Protection of Human Subjects

Permission to conduct the study was requested from the Texas Woman's University graduate school (Appendix A). A completed form describing the proposed study was submitted to the Human Subjects Review Committee at Texas Woman's University (Appendix B). Potential risks, rights, and assurance of anonymity were addressed. Approval was granted without revision. Consent for participation in the study was implied upon completion of the instruments. An explanation of the coding necessary for organization and statistical treatment of the data was provided in the cover sheet accompanying the instruments (Appendix C).

Each site received a written prospectus of the study which was reviewed by the facilities' Human Subjects Review Committee. Included in the cover letter accompanying the prospectus was the name of the researcher's major professor and provision for contact should the facility have any questions or concerns she might alleviate. Data collection

was initiated after receipt of written permission from the university and participating agencies (Appendix D).

Instrumentation

The Social Reaction Inventory (Appendix E) which was used to assess generalized powerlessness was utilized by Seeman and Evans (1962). Permission for use of the tool was obtained from the principal researcher. The instrument consists of 12 forced choice items determining internality or externality (powerlessness). Half of the items concern social events while the other half relate to personal events. The subject received 1 point for each response indicating powerlessness. Higher scores indicated higher levels of powerlessness, while lower scores indicated higher levels of powerfulness.

Construct validity consists of correlations of the instrument and empirical observations of behaviors (Seeman & Evans, 1962; Seeman, 1963). Reliability was established through test retest methods with a coefficient of .93 on college males (Seeman, 1966).

A modification of the Health-Illness Questionnaire (Appendix F) was used to measure situational powerlessness. Permission to use the instrument was obtained from Roy and is included in Appendix F). Roy (1977) developed the original instrument from two scales used earlier by Grubbs

(1968) and Boire (1976). There are 10 forced choice Likert type items. The score is obtained from weights of 0-4 for each item. The higher the total score the higher the level of situational powerlessness.

Content validity was estimated for the original instrument through the general categories included consisting of control over illness, attitudes toward doctors, nurses, and the hospital (Roy, 1977). A Spearman-Brown coefficient of reliability on split halves revealed a .47 when tested on 46 medical-surgical patients. Reliability and validity coefficients for the modified questionnaire are reported under the section "Pilot Study" shown in this report.

The Health Belief Model Instrument (Appendix G) was developed by the researcher specifically for clients diagnosed with diabetes mellitus. The instrument is patterned after similar scales developed for studies with subjects with different health problems (Kirscht et al., 1974; Stillman, 1977). The scale assesses beliefs related to susceptibility and severity of illness and benefits and barriers to action. Content specific items related to diabetes and chronic illness were formalized according to data explicated by Given and colleagues (1983). Items consist of 5-point Likert scale responses with higher value

assigned to responses indicating stronger health beliefs. Content validity was determined by a panel of experts. Estimation of validity and reliability was attempted during the pilot study and is explicated under the section "Pilot Study."

The Diabetic Compliance Survey (Appendix H) is a researcher-created instrument developed to explore compliance behaviors in diabetic clients. Subjects were given a compliance score derived from answers elicited concerning specific behaviors related to prescriptive actions. Content validity was assessed by a panel of experts. Further validity and reliability was accomplished through a pilot study.

The Marlowe-Crowne Social Desirability Scale (Appendix I) is a true-false questionnaire consisting of 33 items. Permission for use of the scale was obtained from the American Psychological Association (Appendix I). An attempt was made to contact the original researchers. One did not respond and correspondence to the other was returned marked "deceased." The instrument provides information regarding the subjects' desire to answer questions according to existing facts or in ways perceived as desirous or socially/researcher approved. Reliability was established for internal consistency using the

Kuder-Richardson formula with a value of .88 obtained for 39 subjects (Crowne & Marlowe, 1960). A test-retest correlation of .89 was also obtained. Use for samples similar to the current study was assessed during a pilot study (Crowne & Marlowe, 1960).

Data Collection

After securing the approval of 3 hospitals, 4 home health agencies, 1 clinic, 2 diabetic support groups, and 3 diabetic teaching programs located in 3 metropolitan areas of the southwest. The researcher discussed the intent and procedure for the study with the individual practitioners and staff members directly involved in data collection. The researcher explained that subjects had the sole right to consent or refuse to participate in the study. Anonymity was maintained by assigning each subject a code number which was used to pair questionnaires and compliance surveys during data collection and statistical treatment.

Each prospective subject was approached individually. Potential subjects were told that the researcher was conducting research regarding the effects of chronic illness on clients and their families. Those clients agreeing to participate were given an address form (Appendix J) and further explanation regarding the need for

a 6-weeks follow-up survey. An explanation about the questionnaires was also provided at this time (Appendix C). Each subject was told he/she could withdraw from the study at any time without penalty. Subjects still willing to participate were asked to sign the address form and complete the Health Belief Model Instrument, the Diabetic Information Sheet (Appendix K), the Health-Illness Questionnaire, the Social Reaction Inventory, and the Marlowe-Crowne Social Desirability Scale.

Six weeks after initial contact the researcher mailed the subject the Health-Illness Questionnaire, the Social Reaction Inventory and the Diabetic Compliance Survey. Instructions regarding how to complete the forms and return them to the researcher were included (Appendix L).

Pilot Study

A pilot study was conducted to:

1. Estimate validity and reliability of the instruments.
2. Identify any problems related to methodology and procedure.
3. Ascertain empirical support for the proposed hypotheses.

Reliability and Validity of Instruments

Estimation of reliability for the HIQ, HBMI, and the DEC, which were modified or created for the current study, was difficult because of the very nature of the concepts being measured. The tools were not amenable to common procedures for establishing reliability, such as test-retest or split halves, since the hypotheses were based on the assumption that given the same tool over time the score of a subject would change. The instruments were, however, submitted to a panel of experts and interrater reliability and content validity was computed for each of the instruments using the technique explicated by Martuza (1977) involving the ratings of two content specialists.

The Health-Illness Questionnaire was reviewed by two experts identified by Roy as nurse researchers involved in studies concerning the concept of powerlessness using tools adapted from Roy's original instrument. Participants were asked to evaluate the relevancy of each item according to a 1-4 scale where 1 = not relevant and 4 = very relevant. A Kappa (k) of 0 was obtained indicating a lack of interrater reliability. The Index of Content Validity (CVI) was then computed to quantify the validity judged by the panel of experts. Although a CVI of .66 was obtained for the modified Health-Illness Questionnaire since reliability was

not established the value could not be accepted as meaningful (Martuza, 1977). All but one of the items receiving somewhat relevant (2) ratings by one expert were treated as very relevant (4) by another expert. The items indicating dissension between experts were then reevaluated for relevancy to this particular study population (Martuza, 1977). Both of the items had not been modified from the original tool and had been identified by Roy as least discriminating and deleted from her final tool. In view of the expertise of the researcher's panel and Roy's original work, the two items were deleted. The revised tool with well explicated instructions regarding the 1-4 rating process was resubmitted to two new experts. The final 10-item tool revealed a K of .41 and a CVI of .7 both values falling within the acceptable ranges suggested by Martuza (1977). One evaluator commented on the clarity and simplicity of the instructions to the subject which was felt to be an improvement over the original questionnaire.

The Diabetic Compliance Survey created by the researcher revealed a K = .57 indicating an acceptable level of interrater agreement, and a CVI of .77 when submitted to two nurse diabetic educators working with the population to be studied. On the basis of the CVI which was acceptable, but less than hoped for, and response of

the subjects participating in the pilot study, one item was deleted. Following deletion of the item the modified instrument still yielded a K of .57, but a higher CVI value of .815 was obtained, enhancing the validity support.

The Health Belief Model instrument generated by the researcher and based on theories explicated by Becker (1974) was evaluated by nurse researchers concerned with health belief, a K of 1 and a CVI of 1 was obtained. In order to further evaluate content validity the panel was asked to independently identify the constructs contained within the instrument and the items in which they were represented. The panel responded in kind identifying susceptibility, severity, barriers, and efficacy as the constructs measured by the tool. The item for item identification of constructs was identical.

Methodology/Procedures

Several problems were encountered during data collection. Although several clinics, support groups and patient education groups were contacted and granted access to the researcher a lack of beforehand knowledge of the newness of diagnosis of the participants made it difficult to locate a significant pool of subjects at any given contact. Additionally, it was discovered that although clinics and education programs specializing in diabetic

maintenance and education encouraged and solicited the participation of newly diagnosed diabetics most attendees were found to have been diagnosed for a number of years and have only initiated participation after referral from their physician. These referrals were usually the result of the physician's dissatisfaction with the subject's maintenance and/or compliance or a new event such as an elevated blood sugar, need for insulin in a subject previously controlled by diet or oral hypoglycemics. This discovery presented the greatest concern to the researcher.

Several interventions were initiated, first the population was expanded to include diabetics whose diagnosis had occurred from 0 to 6 months earlier, secondly subjects were sought through word of mouth referrals and lastly subjects who were interested in participating but did not meet the diagnosis limitation of 6 months were included. It was thought that inclusion of subjects who met all criteria except the diagnosis interval would still contribute data related to the reliability and validity of the tools and the methodological considerations related to survey distribution and collection. Expansion of the area for collection of data was planned for the final study as well as extension of the diagnosis interval to 0 to 6 months.

Hypotheses Support

To provide support for the proposed hypotheses, several statistical procedures were applied to the data. Ten subjects returned the first and second surveys, one was incomplete and excluded from the group. T-tests were performed to discern any differences between a subject's generalized powerlessness level at the time of entry and 6 weeks later, situational powerlessness levels at each testing, and situational powerlessness scores of subjects diagnosed less than 4 months ago and those diagnosed for 4 months or longer.

No significant difference was found between subject's situational or generalized powerlessness score at entry and 6 weeks later. The failure to detect any significant difference in generalized powerlessness scores at the two testings ($t = 1.41$, $p = .19$) supports the premise that generalized powerlessness is a fairly constant state. Situational powerlessness, however, is considered a trait which varies with life experiences. The lack of significant difference ($t = .67$, $p = .52$) for this measure might be explained by the small sample size and the large standard deviation (3.49). Two subjects' scores were markedly different than those of the remaining group. Empirically the individual scores appear to fluctuate over

time and the researcher believed the hypothesis might find support when a larger sample was studied. The two groups divided by length of diagnosis also failed to reveal a significant difference in situational powerlessness levels ($t = 1.53$, $p = .62$) which might be explained by the homogeneity of the sample. Subjects were similar in age, occupation (blue collar/white collar), and history of other chronic conditions (only two subjects reported another chronic condition). Also, since the majority of subjects came from a self-help support group, it is possible that the subjects either already experienced a decline in powerlessness prior to entry or they tended to have lower levels of powerlessness compared to other newly diagnosed diabetics. A t -test was also performed on the subjects' level of powerlessness as measured by the revised Health Illness Questionnaire to see whether it might discern more subtle differences in situational powerlessness in subjects diagnosed less than 4 months or 4 months or longer ($t = -.58$, $p = .6$). The results, although slightly more encouraging, were not significant.

Pearson correlation coefficients were performed to detect any significant relationships between situational powerlessness and compliance, and health belief and compliance. Although a negative correlation ($r = -.3797$,

$p = .15$) was found between situational powerlessness and compliance, the level of significance was below expectation. When using the revised Health-Illness Questionnaire to measure situational powerlessness an r of $-.3981$, $p = .14$ was obtained. A larger sample probably would yield more significant results. Empirical examination did, however, support the proposed hypothesis.

No significant correlation ($r = .1315$, $p = .36$) was found between a subject's health belief and compliance. The direction of the value, however, lent some support for future investigation of these variables.

Although significant results were not obtained in the pilot study the trends and patterns of the data which were demonstrated empirically support future attempts to link the variables. Modifications to be incorporated in the final study and based on the results of the pilot included: measures to ensure a more stratified sample consisting of subjects from clinics, home health agencies, acute care centers, and physician referrals as well as support groups and use of the revised Health-Illness Questionnaire and Diabetic Compliance Survey.

Treatment of Data

Pearson correlations were computed to determine any relationship between the subjects' level of situational powerlessness and compliance; health belief and compliance, health belief and situational powerlessness, and situational powerlessness and generalized powerlessness. Shelley (1984) and Waltz and Bausell (1981) identified correlation statistics proper when attempting to determine the extent to which variables are related. Pearson correlation is used to describe the relationship between one metric independent variable and one metric dependent variable (Issac, 1979; Shelley, 1984). This study was concerned with correlating the dependent variable of compliance with the independent variables health belief and situational powerlessness; the dependent variable health belief with situational powerlessness; and the variable situational powerlessness with generalized powerlessness.

An additional concern of the study involved determining the existence of any significant differences in powerlessness levels at diagnosis and 6 weeks after diagnosis. A t-test for dependent samples was completed to determine any significant differences between generalized or situational powerlessness levels at the

time of diagnosis and 6 weeks later. Shelley (1984) cited the t-test for dependent samples appropriate for data where the dependent variable is interval and one wishes to compare means of the same subjects at two different times or under two different conditions.

Scores on the Marlowe-Crowne Social Desirability Scale were simply used to evaluate the reliability of compliance scores. The higher the score on the scale, the greater a subject's propensity to answer items as perceived researcher approved rather than according to existing facts.

CHAPTER IV

ANALYSIS OF DATA

An analysis of the data collected in the study is presented in this chapter. The sample, as a whole, is described using descriptive statistics. The statistical analyses of the null hypotheses are also reported.

Description of the Setting

A total of 29 agencies in a southwestern state was contacted for participation in the study. Ten agencies consisting of 4 home health agencies, 3 diabetic teaching classes based in acute care hospitals, 1 clinic, and 2 diabetic support groups consented to participate in the study.

A total of 51 subjects was obtained and entered into the study. Nine subjects were disqualified; 1 because of failure to answer a majority of the questions and 8 failed to respond to the second survey. Forty-two subjects completed the study. This constituted an 82% completion rate for the study. The power of this study was $p .50$ (Cohen, 1988).

Of the surveys completed, 8 (19.1%) subjects were from support groups, 27 (64.3%) were from diabetic classes

housed in acute care hospitals, 4 (9.5%) respondents were from a diabetic clinic, and 3 (7.1%) were home health consumers. Table 1 shows the distribution of subjects according to health care agencies. All participants were encouraged to take the survey home for completion.

Table 1

Distribution of Sample by Health Care Agency

Agency	Frequency	Percentage
Classes/hospital	27	64.3
Clinic	4	9.5
Support group	8	19.1
Home health	<u>3</u>	<u>7.1</u>
Total	42	100.0

Description of Sample

Findings concerning the characteristics of the sample are reported in two parts. First the demographic characteristics of the participants are presented and then information concerning diabetic therapeutic prescription is discussed.

The subjects ranged in age from 25 to 74 years. Four subjects declined to report their exact age, but acknowledged they were 25 years or older verifying

eligibility for inclusion in the study. The mean age of subjects reporting was 50.3 years, SD 14.10. Table 2 presents the subject distribution by age.

Table 2

Distribution of Subjects by Age

Age range	Frequency	Percentage
25-35	7	16.7
36-45	9	21.4
46-55	5	17.9
56-65	12	28.6
66-75	5	11.9
no response	<u>4</u>	<u>9.5</u>
Total	42	100.0

Seventeen (40.5%) of the subjects were male while 25 (59.5%) were female. Subjects were asked to indicate their years of education. All subjects responded indicating a range from 8 to 20 years education with the mean years of education being 13.59, SD = 2.96. Table 3 represents the subjects' distribution by years of education.

Table 3

Distribution of Subjects by Education

Years of education	Frequency	Percentage
8	3	7.1
9	1	2.4
10	1	2.4
11	2	4.8
12	11	26.2
13	3	7.1
14	8	19.0
16	6	14.3
17	3	7.1
18	1	2.4
19	2	4.8
20	<u>1</u>	<u>2.4</u>
Totals	42	100.0

Twenty-four (57.1%) of the subjects had been diagnosed within 6 months of participation. Eighteen (42.9%) of the subjects had been diagnosed longer than 6 months, but had been reclassified from Type II to Type I diabetes within the last 6 months. Distribution of participants by length of diagnosis is depicted in Table 4.

Data concerning participants' clinical prescription consist of Type I or Type II classification, use of oral hypoglycemias, whether subjects administered own insulin, frequency of blood sugar checks, and existence of other chronic illnesses.

Table 4

Distribution of Subjects by Length of Diagnosis

Length of diagnosis	Frequency	Percentage
Less than 1 month	5	11.9
1 month	3	7.1
2 months	5	11.9
3 months	1	2.4
4-6 months	10	23.8
More than 6 months	<u>18</u>	<u>42.9</u>
Total	42	100.0

Eleven (26.2%) of the subjects reported being Type II, non-insulin dependent diabetics, while 31 (73.8%) of the subjects were Type I, insulin dependent. Of the 31 subjects reporting insulin therapy, 26 (83.8%) stated they gave their own injections and 5 (16.1%) reported they were in the process of learning how to give their own

injections. There were no participants reporting injections given by another person.

Nine (21.4%) subjects reported taking oral hypoglycemics and 1 (2.4%) subject denied any pharmacological control of blood sugar. Table 5 represents subjects by pharmacological control of diabetes.

Table 5

Distribution of Subjects by Pharmacological Control

Treatment	Frequency	Percentage
Insulin	31	73.8
Oral hypoglycemics	10	23.8
Non-pharmacological control	<u>1</u>	<u>2.4</u>
Total	42	100.0

With the exception of 2 (4.8%) of the subjects, the monitoring of blood sugar levels was reported at least once a week or when they were "having problems." Table 6 represents frequency of blood sugar monitoring.

Participants were asked to list any other conditions their physician had told them they had. Only 7 (16.7%) of the participants reported diagnoses of other chronic

illnesses, while 35 (83.8%) reported being free from other chronic conditions.

Table 6

Distribution of Subjects by Frequency of Blood Sugar Monitoring

Frequency of monitoring	Frequency	Percentage
Not at all	2	4.8
Once a day	8	19.9
More than once a day	21	50.0
Once a week	3	7.1
When having problem	3	7.1
More than once week, but less than once day	<u>5</u>	<u>11.9</u>
Total	42	100.0

The Marlowe-Crowne Social Desirability Scale was used to determine authenticity of a subject's responses. Subjects scoring greater than 24 on the scale were to be excluded from the study. Upon analysis of the data, 7 subjects scored higher than 24. In view of the sample size of 42, it was determined that the exclusion of the 7 subjects would jeopardize the findings; therefore, they were included in the final analysis. In future studies

with a larger N, these subjects would be excluded. A predominance of subjects (83.33%) of the sample, however, did have scores falling in the acceptable range indicating a propensity for answering questions as things really are rather than as perceived to be researcher approved.

Findings

Testing of the Hypotheses

Presentation of the findings for each hypothesis includes a restatement of the hypothesis, the statistical procedure used, and a brief description of the findings.

Hypothesis 1

There is no significant relationship between a client's level of situational and generalized powerlessness, as measured by the HIQ and Social Reaction Inventory (SRI), at the time of diagnosis.

The Pearson-product moment correlation was used to determine if any correlation existed between a subject's level of situational powerlessness and generalized powerlessness at the time of diagnosis. Hypothesis 1 was rejected ($r = .3488$, $p < .05$). The correlation coefficient (r) for situational powerlessness and generalized powerlessness explains 12% of the variance. The subjects'

levels of situational powerlessness (HIQI) and generalized powerlessness (SRII) were correlated at time of diagnosis.

Hypothesis 2

There is no significant inverse relationship between a newly diagnosed diabetic client's level of situational powerlessness and health belief.

The Pearson-product moment correlation was used to determine if a relationship existed between a newly diagnosed diabetic's level of situational powerlessness and health belief. Hypothesis 2 was rejected ($r = -.4016$, $p < .01$). The subjects' level of situational powerlessness at time of diagnosis (HIQI) was inversely correlated with health belief.

Hypothesis 3

There is no significant relationship between a client's health belief and level of compliance.

The Pearson-product moment correlation was used to determine if a relationship existed between a subject's health belief and level of compliance. Hypothesis 3 was accepted ($r = .0539$, $p > .05$). The correlation coefficient (r) for health belief and level of compliance explains 16% of the variance. In this sample, health belief was not related to level of compliance.

Hypothesis 4

There is no significant inverse relationship between a newly diagnosed diabetic client's level of situational powerlessness, as measured by the Health-Illness Questionnaire (HIQ) and level of compliance to clinical prescription.

The Pearson-product moment correlation was used to determine if a relationship existed between a subject's level of situational powerlessness 6 weeks post-diagnosis (HIQII) and compliance to clinical prescription.

Hypothesis 4 was rejected ($\underline{r} = -.3273$, $\underline{p} < .05$). The correlation coefficient (\underline{r}) for situational powerlessness levels and compliance explains 12% of the variance. A newly diagnosed diabetic's level of situational powerlessness 6 weeks post diagnosis is inversely related to compliance to clinical prescription.

Depiction of the findings concerning the first four hypotheses are found in Table 7.

Hypothesis 5

There is no significant difference between a client's level of generalized powerlessness at time of diagnosis and scores obtained 6 weeks post diagnosis.

Table 7

Relationships Among Health Belief Compliance and Situational and
Generalized Powerlessness

	Health belief	Compliance	Situational powerlessness I	Generalized powerlessness I	Situational powerlessness II	Generalized powerlessness II
Health belief	1.0000					
Compliance	.0539	1.0000				
HIQ I	-.4016**	.0196	1.0000			
SRI I	-.3004	-.0535	.3488*	1.0000		
HIQ II	-.4658**	-.3273*	.5827**	.2976	1.0000	
SRI II	-.3456	.0786	.3614	.7737**	.3192*	1.0000

* significant level .05

** significant level .01

The t-test for dependent sampled was used to determine if there was a difference in a subject's generalized powerlessness levels at diagnosis (SRII) and 6 weeks later (SRI II). Hypothesis 5 was accepted (t = 1.83, df = 41, p = .074). There was no significant difference in subjects' level of generalized powerlessness at diagnosis and 6 weeks later.

Hypothesis 6

There is no significant difference between a client's level of situational powerlessness at time of diagnosis and 6 weeks post diagnosis.

The t-test for dependent samples was used to determine if any significant difference existed between a subject's level of situational powerlessness (HIQI) at time of diagnosis and 6 weeks later (HIQII). Hypothesis 6 was accepted (t = 1.69, df = 41, p = .099). Subjects' situational powerlessness level did not vary over time.

The findings concerning Hypotheses 5 and 6 are depicted in Table 8.

Summary of Findings

A summary of the findings consist of significant correlations between a client's level of situational powerlessness and generalized powerlessness at time of

Table 8

Means, Standard Deviations, and t-values for Situational (HIQ) and
Generalized (SRI) Powerlessness Over Time

Instrument	No. of cases	Mean	Standard deviation	Standard error	Correlation	2-tail prob.	t-value	df	2-tail prob.
HIQ	42	10.0238	3.432	.530	.583	.000	1.69	41	.099
		9.1667	3.754	.579					
SRI	42	4.2619	2.623	.405	.774	.000	1.83	41	.076
		3.7619	2.639	.407					

diagnosis. Significant inverse relationships were found to exist between a subject's situational powerlessness level 6 weeks after diagnosis and compliance to clinical prescription; and between a subject's level of situational powerlessness at time of diagnosis and health belief.

Nonsignificant findings included the lack of a significant relationship between health belief and compliance as well as the lack of significant difference between situational and generalized powerlessness levels over time.

Thus, noting that correlation coefficients were generally low to moderate for the study sample:

1. A differentiation was not made between situational and generalized powerlessness.
2. The greater the powerlessness, the lesser the compliance.
3. The greater the powerlessness, the lesser the health belief.

Additional findings of interest concern demographic information. While diabetes mellitus is considered a chronic condition often complicated by the presence of other chronic conditions, only 16.7% of the sample admitted having at least one other chronic condition. This may be

accounted for by the fact that over one-half of the subjects had been diagnosed for less than 1 year.

CHAPTER V

SUMMARY OF THE STUDY

A summary of the study is presented in this chapter. The results of the data analysis as well as findings and conclusions are discussed. A discussion of the implications and recommendations for further study conclude the chapter.

Summary

Relationships among the two variables of powerlessness, health belief and compliance were tested. In addition, both situational and generalized powerlessness were tested for any significant difference over time.

Diabetics 25 years or older having been diagnosed within the last 6 months or having been reclassified from Type II to Type I diabetes within the last 6 months were solicited from diabetic classes based in acute care hospitals, clinics, diabetic support groups, and home health agencies. A sample of 42 subjects was included in the study.

The survey consisted of a Diabetic Information Sheet, Health Illness Questionnaire, Social Reaction Inventory, Health Belief Model Instrument, and the Marlowe-Crowne Social Desirability Scale. Six weeks later the subject was

sent the second survey consisting of the Social Reaction Inventory, Health Illness Questionnaire, and the Compliance Survey.

A summary of the findings consists of significant correlations between a client's level of situational powerlessness and generalized powerlessness at time of diagnosis. Significant inverse relationships were found to exist between a subject's situational powerlessness level 6 weeks after diagnosis and compliance to clinical prescription; and between a subject's level of situational powerlessness at time of diagnosis and health belief.

Nonsignificant findings included the lack of a significant relationship between health belief and compliance as well as the lack of significant difference between situational and generalized powerlessness levels over time.

Thus, noting that correlation coefficients were generally low to moderate for the study sample:

1. A differentiation was not made between situational and generalized powerlessness.
2. The greater the powerlessness, the lesser the compliance.
3. The greater the powerlessness, the lesser the health belief.

Discussion of Findings

The findings of the study are discussed in relation to the hypotheses tested. Hypotheses are grouped according to significant findings and nonsignificant findings and consist of significant correlations between a client's level of situational powerlessness and generalized powerlessness at time of diagnosis. Significant inverse relationships were found to exist between a subject's situational powerlessness level 6 weeks after diagnosis and compliance to clinical prescription, and between a subject's level of situational powerlessness (HIQI) at time of diagnosis and health belief.

Nonsignificant findings included the lack of a significant relationship between health belief and compliance as well as the lack of significant difference between situational and generalized powerlessness levels over time.

Hypothesis 1

A significant positive relationship ($r = .3488$, $p < .05$) was found between a subject's situational and generalized powerlessness at time of diagnosis. Support for this hypothesis was only empirical in nature and based on findings of Roy (1977) and Miller (1983a) which stated that situational powerlessness is variable and determined

by particular events while locus of control (generalized powerlessness) is fairly stable over time and can be conceptualized as a personality trait. Since a variety of research concerning both generalized and situational powerlessness shows similar results when the concepts are linked to compliance or learning and in light of their significant correlation, one can speculate that a subject with a high level of generalized powerlessness might react with greater situational powerlessness when faced with a precipitating event or stressor.

The findings of the current study support the premise that one's level of situational and generalized powerlessness are closely linked. Also, in view of the low number (16.7%) of subjects diagnosed with other chronic illnesses, the possibility of having measured powerlessness as a response to another health insult is minimal.

One possibility is that current instruments do not differentiate between the two variants. Secondly, since the two variants seem closely linked and the propensity of previous research concerning learning and compliance do not differentiate between the two, such differentiation may not be of value.

Hypothesis 2

A significant inverse relationship was found to exist between a newly diagnosed diabetic's level of situational powerlessness and health belief ($r = -.4016$, $p < .01$). Although previous research has failed to directly link the concepts of powerlessness and health belief earlier studies did suggest the existence of possible relationships. In a study by Gierszewski (1983) examining weight loss, locus of control, and social support internal subjects were found to be less influenced by social support ($r = -.64$, $p = .02$) suggesting motivation was received by the subjects' own perceptions rather than from others.

Hallal (1982) found health belief and locus of control (powerlessness) were significantly correlated with self-breast examination. The researcher linked internality (powerlessness) with the "perceived benefits" subscale of the health belief model, citing both as factors in carrying out self-breast examination ($F = 1,17$, $p < .05$).

The current study supports Hallal's (1982) previous findings. The previous study, however, focused on preventative activities rather than compliance activities. Hypothesis 2 demonstrates a significant inverse relationship between powerlessness and health belief. Subjects who perceive themselves more able to affect

changes in consequences (low powerlessness) demonstrated higher health belief scores.

Hypothesis 4

A significant inverse relationship ($r = -.3273$, $p < .05$) was found to exist between a newly diagnosed diabetic's level of situational powerlessness and compliance. Previous research findings concerning powerlessness and compliance were not specific for situational powerlessness, but did support a relationship between compliance and nonspecified powerlessness. Seeman and Evans (1962) studied 86 hospitalized subjects and found lower levels of knowledge in clients displaying higher levels of powerlessness ($t = 2.216$, $p = .05$). Raps, Peterson, Jones, and Seligman (1982) found hospitalized patients who perceived a loss of control over events (powerlessness) exhibited decreased problem-solving skills, $F(3,56) = 46.18$, $p < .001$. However, Muhlenkamp and Nelson (1981) found participants in a weight reduction program were more compliant to weighing protocols if they were externally oriented, powerless ($t = 1.80$, $p = .08$). Arakelian (1980) in an article, anecdotal in nature, cited a wealth of studies affirming powerlessness as a variable affecting compliance.

Lowery and DuCette (1976) investigated the relationship between learning and locus of control in newly diagnosed diabetics. Internal (powerful) diabetics were found to have fewer disease related problems after 3 years ($F = 5.06$, $df = 1,56$, $p < .05$). Finally, Gotch (1983) attempted to correlate locus of control (powerlessness) to compliance in insulin dependent diabetics, but yielded no significant findings.

Since diabetes is a chronic illness and clients must assimilate new knowledge into compliance behaviors, both studies concerning health teaching and compliance impact on Hypothesis 4. The findings of the current study support previous studies which cite powerlessness levels to be inversely correlated with compliance. Subjects with lower levels of powerlessness reveal higher compliance scores.

Findings Not Reaching Statistical Significance

Hypothesis 3

No significant relationship was found to exist between a subject's health belief and level of compliance ($r = .0539$, $p > .05$). This finding was only partially supported by previous research findings. Hallal (1982) found health belief significantly correlated with self-breast examination actions ($r = .286$, $p < .01$). Muhlenkamp,

Brown, and Sands (1985) found no significant relationship between health belief and self-care activities. Maternal compliance with immunization was not found to be significantly related to health belief, $F(1,87) = 1.09$, $p = 0.77$) by Rosenblum, Stone, and Skipper (1981). Nagy and Wolf (1984) were unable to correlate health belief and compliance. The researcher cited the large number of subjects who strongly endorsed health values as a possible factor leading to nonsignificant findings.

Although supported by previous studies, the findings of the current study concerning Hypothesis 3 were not as anticipated. However, as in the study by Nagy and Wolf (1984) health belief scores varied little with most subjects demonstrating high health belief scores. Possible scores for the health belief scale range from 12-36, the score for subjects in the current study ranged from 23-33 ($\bar{x} = 29.09$, $SD = 2.602$). A larger sample yielding more varied scores might reveal significant findings.

Hypothesis 5

Generalized powerlessness was not found to vary over time ($t = 1.841$, $df = 41$, $p = .074$). This finding is supported by both Seeman (1959) and Roy's (1976) explication of powerlessness as well as Rotter's (1966) presentation of locus of control which is closely linked to

trait or generalized powerlessness. Specific research findings supporting the hypothesis were lacking.

The findings of the current study were as expected adding to support of previous studies. One must remember, however, that only 6 weeks elapsed between test and retest and may vary with greater time between measurements.

Hypothesis 6

A client's level of situational powerlessness was not found to differ over time ($t = 1.69$, $df = 41$, $p = .099$). Theoretical support for the hypothesis was explicated by Roy (1976, 1984). O'Brien (1980) found powerlessness increased significantly over time ($t = 1.96$, $df = 62$, $p < .05$) in hemodialysis patients. Time factors, however, related to the change were longer than those employed in the present study.

The findings concerning Hypothesis 6 were not as anticipated, but not surprising in light of the findings of Hypothesis 1 which demonstrated a strong correlation ($r = .3488$, $p < .05$) between generalized and situational powerlessness. Another factor which might have impacted the results was the short time between measurements.

Conclusions

The conclusions of the study are discussed in two sections. The first concerns the theoretical framework and the second section discusses the instruments employed in the study.

Theoretical Framework

The study was based on a model developed by the researcher and comprised of an integration of several existing models explicated earlier within this study.

The propositions tested in the study were:

Proposition 1. Among persons the greater the generalized powerlessness, the greater the situational powerlessness.

Proposition 2. Among persons, the greater the situational powerlessness, the lesser the health belief.

Proposition 3. Among persons, the greater the health belief the greater the level of compliance (Becker, 1974).

Proposition 4. Among persons, the greater the situational powerlessness, the lesser the compliance (Roy, 1977; Seeman & Evans, 1977).

The adequacy of the theoretical model was evaluated using correlational statistics. The initial model is shown in Figure 1. Findings of the study supported three of the four propositions presented by the researcher.

A significant relationship was found to exist between situational and generalized powerlessness supporting Proposition 1. This finding leads one to question the value of differentiating between situational and generalized powerlessness since additional statistics concluded that not only are they highly correlated, but they did not vary over time.

Additionally, a significant inverse relationship was found to exist between a client's level of situational powerlessness and health belief supporting Proposition 2. No support was found for Proposition 3. No statistically significant relationship was found to exist between a client's health belief and compliance. This finding was somewhat surprising since health belief and situational powerlessness were highly correlated and powerlessness showed a significant correlation with compliance. However, closer examination of the findings did reveal that although the correlation was not significant it was in the predicted direction ($r = .0539$, $p > .05$) indicating that the variables do vary together. Again, since in general, health belief scores of all subjects were relatively high, heterogeneity was not insured, possibly impacting on the significance of the findings.

Finally, a statistically significant inverse relationship was found between a client's level of situational powerlessness and compliance supporting Proposition 4. A revision of the model depicting relationships of concepts is represented in Figure 2.

Additional Statistically Nonsignificant Findings

No support was found for differentiating between situational and generalized powerlessness. Both variables impact on compliance and do not vary significantly over time. This finding was not surprising since the variables were found to be significantly correlated. Thus, the lack of support for Hypotheses 5 and 6 only add to the support for Proposition 1.

Instruments

The Social Reaction Inventory was simple to complete and consisted of only 12 items. Subjects participating in the study did not seem to have difficulty completing the instrument. Scores of subjects did not vary significantly over time supporting the relative stability of generalized powerlessness over time. The tool had been used in a number of previous studies on a variety of populations. Construct validity was supported through empirical

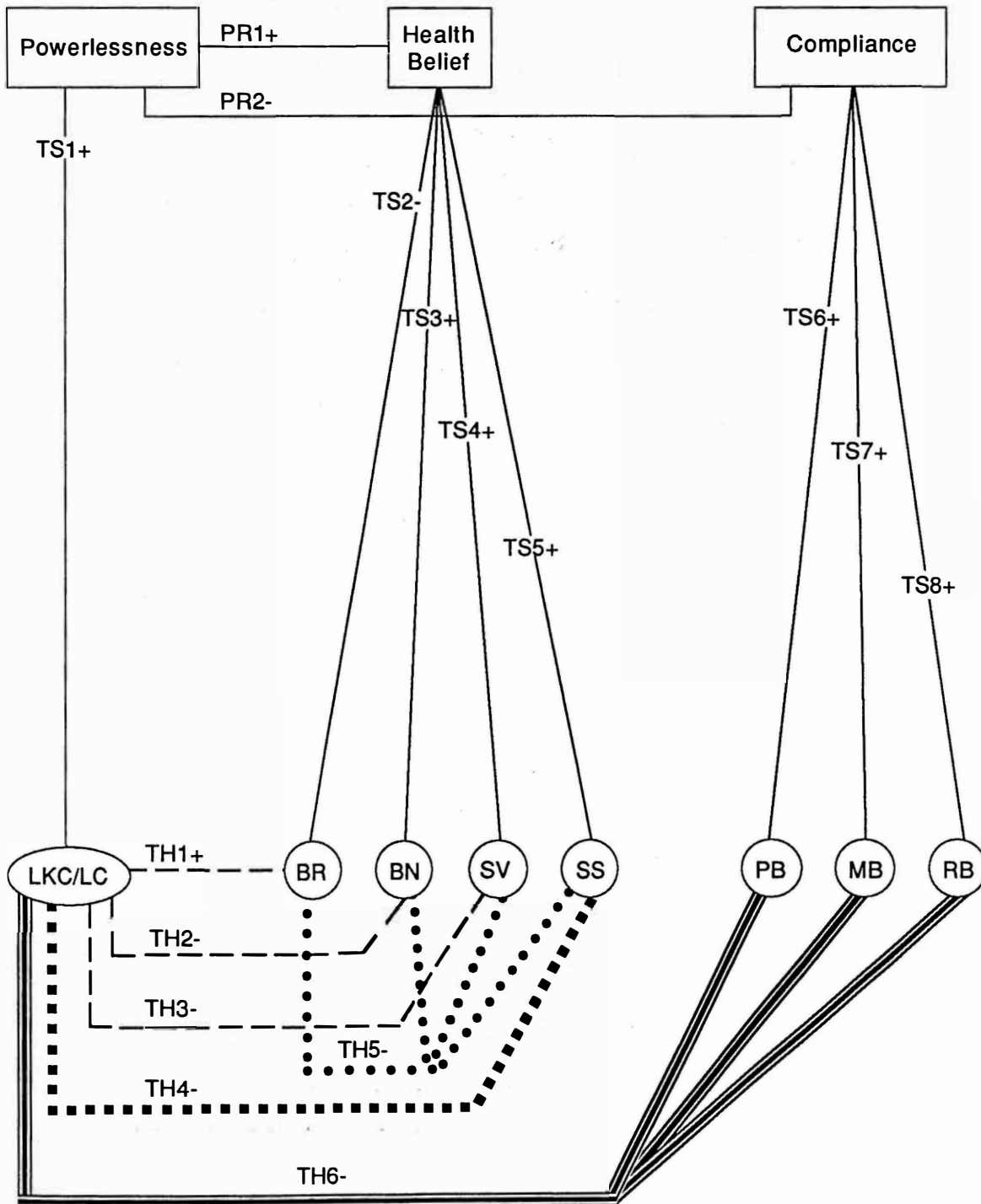


Figure 2. Revised model of powerlessness, health belief and compliance.

observation while reliability was determined through test retest methods.

The small N of the current study did not facilitate further statistical evaluation of the instrument. However, since the related scores did vary with compliance in the expected direction, and the SRI has been used and tested in a number of studies, the researcher has confidence in the instrument and supports its use in future studies.

The Health Illness Questionnaire offered subjects few barriers to completion. The instrument is a modification of a tool developed by Roy (1977). The original tool was used in a number of studies with hospitalized subjects. The current tool was modified by the researcher after preliminary evaluation in a pilot study. No new items were added, but two items from the original tool were deleted. The only other modifications were editorial in nature making the language inclusive of hospitalized and nonhospitalized subjects. The small N of the current study did not facilitate factor analysis. Again, scores did vary in the anticipated direction and correlated strongly with the SRI, lending support for its appropriateness.

The researcher suggests further validation of the instrument in future studies. Additionally, in view of the

strong correlation of scores on the SRI and HIQ, one questions whether use of both tools are necessary.

The Health Belief Model Instrument was simple to complete and consisted of 12 items. The instrument was patterned after similar scales and designed specifically for diabetic clients. Factor analysis was hampered by the small N, but content validity was established during a pilot study.

Since health belief scores did not correlate with compliance as anticipated despite significant correlation with powerlessness, one might wonder if the instrument is less sensitive or discriminating than the situational powerlessness instrument. The researcher advocates examination of the instrument with larger samples. The researcher, however, does not negate the use of the tool since the homogeneity (consistent high scores) of the sample may account for the seeming lack of sensitivity.

The Diabetic Compliance Survey was an eight-item instrument which proved simple for subjects to complete. The instrument was developed by the researcher specifically for the identified population of newly diagnosed diabetics. The Marlowe-Crowne Social Desirability Scale was the longest of the instruments, consisting of 33 items and was used to assess the authenticity of answers elicited on the

DCS. The MCSDS has been used in a variety of studies and used in samples similar to the current study and was assessed during the pilot.

Eight of the 42 subjects in the current study scored more than 24 and would have been eliminated from the study had there been a larger N. Since these 8 subjects were retained, one might question the authenticity of their compliance scores. The researcher, therefore, suggests further use of the MCSDS as a correlate of compliance scores in future studies. However, in light of the variety of compliance measurements used in past studies and the number of past studies which acknowledged self-report measurements as reliable, the researcher would use the DCS in future studies.

Implications

The impact of the findings supporting the inverse correlation between powerlessness and compliance have the potential of being far-reaching and add greatly to the practice of nursing. In light of the continuing graying of America and the growing population diagnosed with chronic disease states several implications are apparent. A plethora of studies, some cited in the body of this study, indicate noncompliance among the chronically ill as a historical and continuing problem plaguing health care

providers and impacting on the life style of a growing number of health care consumers.

Determining a client's level of powerlessness may assist health care providers to identify clients at risk for maladaptive or noncompliance behaviors. Although it is beyond the scope of this study, further study may determine if interventions decreasing powerlessness might impact on compliance.

In light of the significant correlation between situational and generalized powerlessness and the failure of either variable to change significantly over time, it may be prudent to assess only one such level at one point in time for clients diagnosed with chronic illness. However, it should be remembered that the time between measurements was short and levels may need to be assessed at longer intervals before making such conclusions. It must also be remembered that this study was diagnosis or population specific and studies on other groups of chronically ill adults are needed before findings may be generalized.

Additionally, since health belief and powerlessness seem highly correlated, one might expect that measurement of one variable might preclude assessment of the other or assessment of one might validate assessment findings

concerning the other. However, considering the nonsignificant findings regarding correlations of health belief with compliance, such simplifications might be premature. One wonders if the powerlessness instruments are more sensitive or discriminating than the health belief instrument. Such a possibility should be explored before other conclusions are made.

Considering the paucity of conclusive findings of chronically ill, the increasing population of chronically ill, and the minimal progress health care providers have achieved in the area of client compliance, this study adds to that body of knowledge and explicates relationships between powerlessness and compliance. It is only with complementary and more extensive studies that one can expect to develop interventions which have the potential of affecting positive life style changes for the chronically ill.

Recommendations for Further Study

Based on the conclusions and implications of the study, the following recommendations are made:

1. Further investigate the occurrence of powerlessness in other chronically ill diagnostic or population specific groups.

2. Further investigate the stability of powerlessness levels over various time periods.

3. Using a larger and more diverse sample (multiple chronic conditions) explore the utility of health belief as a correlate of compliance.

4. Conduct a study with a larger N, using regression analysis to develop and test the utility of a model for compliance.

5. Further investigate through a study with a larger N the validity and reliability of the HIQ, HBMI, and the DCS.

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APPENDIX A

Graduate School Permission to Conduct Study

TEXAS WOMAN'S UNIVERSITY
 DENTON DALLAS HOUSTON
 THE GRADUATE SCHOOL
 P.O. Box 22479, Denton, Texas 76204 817-898-3400, 800-338-5255



May 24, 1989

Ms. E. Patricia Meyer
 2104 Robin
 Altus, OK 73521

Dear Ms. Meyer:

I have received and approved the Prospectus for your research project. Best wishes to you in the research and writing of your project.

Sincerely yours,

Leslie M. Thompson

Leslie M. Thompson
 Dean for Graduate Studies
 and Research

dl

cc Dr. Virginia Smith
 Dr. Helen Bush

APPENDIX B

Research Review Committee Exemption Form

This prospectus proposed by: Patricia Meyer
_____ and entitled:

xx Is exempt from Human Subjects Review Committee review
because it is classified as Category I research

_____ Requires Human Subjects Review Committee review
because _____

Member

Helen A. Bush
Fathia Harrison
Margaret T. Beard
Linda Harrington
Glen Jennings

APPENDIX C

Cover Letter

Dear Diabetic:

I am a nurse conducting a study concerning how people feel and act when they discover they have a chronic condition. The results of this study will be used to help people who are faced with such a condition live healthier lives. I am asking for your help.

Helping with this study will only involve about 30 minutes to an hour of your time on two separate occasions. All you will have to do is fill out two questionnaires 6 weeks apart. You may take the first questionnaire home, complete it, and mail it back to me in the self-addressed, stamped envelope I have provided. The second questionnaire will be mailed to you in about 6 weeks with a self-addressed envelope in which to return it. There are no right or wrong answers to the questions and you cannot pass or fail the questions. I merely wish to know how you feel and act regarding your diabetes.

All information you give me will be kept confidential and will not be shared with your doctors or nurses. The information you provide will only be grouped with other people's information and reported as a group. No one at the clinic/hospital will know or keep a record of your participation.

If you are willing to help me with this study, please do the following things:

1. Fill out the address form and place it in the envelope marked "address."
2. Place the envelope marked "address" in the larger envelope address to me.
3. Answer the questionnaire and place it in the larger envelope and drop it in a mail box.
4. In about 6 weeks when you receive the second questionnaire, fill it out and mail it back in the envelope you will receive with the questionnaire.

5. If you should have any questions, or if you wish to withdraw from the study, you may contact me by phone at 405/772-0226 or by mail at 2500 Locust Lane, Weatherford, OK 73096.

Thank you for your time.

Pay Meyer, RN

APPENDIX D

Agency Permissions



CHEROKEE NATION
P.O. Box 948 • Tahlequah, Okla. 74465 • (918)456-0671

Wilma P. Mankiller
Principal Chief
John A. Keicher
Deputy Chief

November 2, 1989

Pat Meyer
2500 Locust Lane
Weatherford, OK 73096

Dear Pat:

This letter is to bring you up to date on the survey packets. My staff have not identified anyone yet who meets the criteria, and is willing to participate in the survey.

However, we will keep the packets and hopefully be able to help you in the future as new clients are added to the caseload.

Sincerely,

Janie Dibble, Director
Public Health/Home Health
Cherokee Nation
Tahlequah, OK

JD:dw



DIABETES MANAGEMENT CENTER
of
OKLAHOMA CITY CLINIC

February 7, 1990

Pat Meyer MSN, RN
2500 Locust Lane
Weatherford, Oklahoma 73096

Dear Pat:

This letter is to confirm the permission given from the Oklahoma City Clinic to conduct your research on compliance and diabetes. Dr. Painton, Dr. Males and Dr. Davis have given permission to obtain subjects from their pool of diabetes patients.

Sincerely,

A handwritten signature in cursive script that reads "Susan".

Susan Mitchell M.S., RN, C, CDE

SM/rlp



Health Watch, Inc.

1-800-727-2735
We Watch With Care

August 29, 1989

Pat Meyer
2500 Locust Lane
Weatherford, OK 73096

Dear Pat:

Health Watch, Inc. would be happy to allow you to conduct research with us. We hope that the information gathered will help provide insight into the problems of diabetic patients.

Sincerely,

Vicki Miller RN

Vicki Miller RN
Director of Private Duty

P.O. Box 6604
Weatherford, Oklahoma 73096



August 24, 1989

Pat Meyer, MSN, RN
2500 Locust Lane
Weatherford, OK 73096

Dear Pat,

Concepts of Care will be happy to allow you to conduct research on newly diagnosed diabetics who agree to participate in your study.

We would appreciate a copy of your findings upon completion of the study.

Sincerely,



Judy Milan, RN, BSN



COMANCHE COUNTY HOSPITAL AUTHORITY

P. O. BOX 129 • LAWTON, OKLAHOMA 73502 • 405 353 3222

RANDY L. CURRY
PRESIDENT

January 18, 1990

Ms. Pat Meyer, MSN, RN
2500 Locust Lane
Weatherford, Oklahoma 73096

Dear Ms. Meyer:

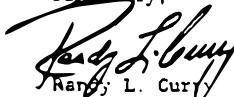
I have become aware, through Dottie Brown, R.N., that you are a doctoral candidate pursuing a PhD in Nursing at Texas Womens University. At this time, you are conducting research concerning powerlessness, health beliefs and compliance in people with newly diagnosed diabetes or those who have recently been reclassified from Type II to Type I within the last six months. Participants must be at least 25 years of age.

To be included in the study, the person must complete two questionnaires (at the time they are identified and then six weeks later). Confidentiality will be maintained. The date will be reported only in group form. Consent is acquired by their filling out and returning the questionnaires.

Dottie Brown will assist in identifying people who fit the criteria for the study.

Permission to conduct research through Comanche County Memorial Hospital for this particular study is granted.

Sincerely,


Randy L. Curry
President

RLC/lm



November 20, 1989

Pat Meyer, RN
2500 Locust Lane
Weatherford, Oklahoma 73096

Dear Ms. Meyer:

The Nursing Research Committee has granted approval of your Research. You may contact Marlene Brothers anytime to discuss research packets and other details.

Good luck with your research and let us know if we can help you in any way. We look forward to your report of results after completion of your project.

Sincerely,

Marlene McAllister

Marlene McAllister, RN, MSN
Director, Research and Development

MM/co

cc: Marlene Brothers

*See Specials
Sept 29/89*

Cleveland Area Hospital

HOME HEALTH SERVICE
1401 W. PAWNEE
PHONE 918-358-2501
CLEVELAND, OKLAHOMA 74020-3097

September 14, 1989

Ms. Pat Meyer
2500 Locust Lane
Weatherford, OK 74096

Dear Pat,

I am very pleased that you picked our agency for your research on diabetes.

Cleveland Area Hospital Home Health Service is pleased to help you. We have handed out your packets to several patients. I hope they follow through for your research.

If I may be of further help, please do not hesitate to contact me.

Sincerely yours,



Carol Horvath, RN C
Director
Home Health Services

CH:gs



1000 North Lee Street
Post Office Box 205
Oklahoma City, Oklahoma 73101
(405) 272-7000

July 16, 1990

Pat Meyer, MSN, RN
2500 Locust Lane
Weatherford, Oklahoma 73096

RE: "Powerlessness, Health Beliefs and Compliance in Newly
Diagnosed Diabetics"

Dear Ms. Meyer:

On May 24, 1990 the Investigational Review Board of St. Anthony Hospital met and reviewed your protocol. The IRB approved your protocol, although it is not in agreement with the editorial comments in the opening paragraphs and recommends they be revised.

Continuing approval is contingent on investigator compliance with the investigation protocol, notification to the board of any adverse reactions, study changes or conduct outside the protocol and progress reporting of the research to the IRB no less than once per year.

We look forward to working with you on this project.

Sincerely,

M. Boyd Shook, M.D.
Institutional Review Board Chairman

MBS/dl

APPENDIX E

Social Reaction Inventory

Information regarding this copyrighted instrument may be
obtained from:

Dr. Melvin Seeman
Univ. of California Los Angeles
405 Hilgaed Avenue
Los Angeles, CA 90024

2104 Robin
Altus, Ok 73521
July 5, 1986

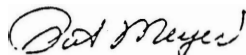
Dr. Melvin Seeman
University Of California Los Angeles
405 Hilgard Avenue
Los Angeles, CA 90024

Dear Dr. Seeman

I am a doctoral student at Texas Woman's University interested in the effect of certain psychological variables on an individual's compliance to medical prescription. I would very much like to use the instruments you developed for measuring situational and generalized powerlessness.

I am requesting permission to use the tools as presented in Roy's 1977 dissertation entitled Decision-Making by the Physically Ill and Adaptation During Illness as well any additional information you may have regarding the instruments' reliability and validity.

Sincerely

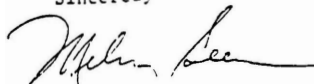


Pat Meyer, MSN
Doctoral Student Texas Woman's University
Denton, Texas

Dear Ms Meyer,

I certainly have no objection to your using the scales to which you refer above in your doctoral study, and I would imagine that Dr. Roy would have no objection either, and of course we would like to be kept informed of the results of the work. Since Dr. Roy was the party who developed these scales for use in nursing settings, it is certainly her approval that is primary in this case. The last address that I have for her is: Sister Callista Roy, Dept. of Nursing, Mt ST. Mary's College, Los Angeles, CA, 90049. Good luck.

Sincerely



APPENDIX F

Health-Illness Questionnaire

Information regarding this copyrighted instrument may be
obtained from:

Dr. Callista Roy, R.N., Ph.D.
Clinical Nurse Researcher
School of Nursing
Department of Physiological Nursing
San Francisco, CA 94143

School of Nursing
Department of Physiological
Nursing, N 611Y
San Francisco, CA 94143

University of California, San Francisco . A Health Sciences Campus



August 13, 1986

Dear Pat Meyer, MSN

This letter is in response to your request about research instruments used in my doctoral dissertation, the Hospitalized Patient Decision-Making Questionnaire and/or the Health-Illness Powerlessness Questionnaire. Since I receive many such requests, I will make a general response that meets most needs.

1. Copies of the instruments and information available on their validity and reliability, as well as descriptions of the circumstances of their use, can be obtained by getting a copy of my dissertation (abstract enclosed).
 - a. Borrow from interlibrary loan, University of California at Los Angeles.
 - b. Order from University Microfilms, Ann Arbor, Michigan.
2. Permission is hereby granted for the use of either or both instruments for studies contributing to educational or patient care purposes, but not for use to include commercial or profit-making endeavors. Modifications may be made as useful to the aim of individual studies.
3. A list of other persons interested in your content area is enclosed.
4. For the sake of developing knowledge in this important area, would you be willing to send me an abstract of your completed study? I would like to maintain a file to share relevant information among investigators like yourself. Please include a permission to distribute your abstract, as well as an address where you can be reached, if further information is needed.

My best wishes for the success of your project.

Sincerely,

Callista Roy, R.N., Ph.D.
Clinical Nurse Researcher

CR/ek

APPENDIX G

Health Belief Model Instrument

___ Code

Health Belief Model Instrument

For each of the following statements, please check the area anywhere along the line which most closely describes your belief.

1. I worry about having problems with my Diabetes.

___ All the time
___ Sometimes
___ Never

2. The consequences of Diabetes are.

___ Very serious
___ Serious
___ Not serious

3. Taking care of my Diabetes interferes with the way I live.

___ Almost never
___ Sometimes
___ Often

4. When I am careful and take care of my Diabetes I feel much better than when I don't.

___ Usually true
___ Sometimes
___ Never true

5. Having Diabetes is very serious.

___ Strongly agree
___ Agree
___ Strongly disagree

6. The chances that I could get very sick because of my Diabetes are.

___ Very probable
___ Probable
___ Not probable

7. Taking care of my Diabetes costs more than I can afford.
- ☐ Always
 - ☐ Sometimes
 - ☐ Never
8. If I follow my doctor's orders I will live a better life.
- ☐ Strongly Agree
 - ☐ Agree
 - ☐ Strongly disagree
9. There is a good chance Diabetes will cause me other health problems
- ☐ Probably not
 - ☐ Probable
 - ☐ Very probable
10. It is embarrassing to have to do special things for my Diabetes when I'm away from home.
- ☐ Never
 - ☐ Sometimes
 - ☐ Always
11. My family likes it when I take care of myself.
- ☐ Hardly ever
 - ☐ Sometimes
 - ☐ Always
12. My Diabetes does not bother me much.
- ☐ Strongly agree
 - ☐ Agree
 - ☐ Strongly disagree

APPENDIX H

Diabetic Compliance Survey

___ Code

Diabetic Compliance Survey

Please fill in the blank or check the appropriate response.

1. I take my insulin just as the doctor/nurse directed me to do.

___ Always
___ Most of the time
___ Sometimes
___ Hardly ever
___ Never
___ I am not on diabetes medicine

2. I eat only those foods that are allowed on my diet.

___ Always
___ Most of the time
___ Sometimes
___ Hardly ever
___ Never

3. I have regular mealtimes.

___ Always
___ Most of the time
___ Sometimes
___ Hardly ever
___ Never

4. I check my blood for sugar as I was taught.

___ Always
___ Most of the time
___ Sometimes
___ Hardly ever
___ Never
___ Not taught

5. I check my urine for sugar as I was taught.

___ Always
___ Most of the time
___ Sometimes
___ Hardly ever
___ Never
___ Not taught

6. I keep my appointments with my doctor.

- ☐ Always
- ☐ Most of the time
- ☐ Sometimes
- ☐ Hardly ever
- ☐ Never

7. I take special care of my skin.

- ☐ Always
- ☐ Most of the time
- ☐ Sometimes
- ☐ Hardly ever
- ☐ Never

8. I call my doctor or the clinic when I notice signs which tell me I am ill or my diabetes is "acting up".

- ☐ Always
- ☐ Most of the time
- ☐ Sometimes
- ☐ Hardly ever
- ☐ Never

APPENDIX I

Marlowe-Crowne Social Desirability Scale

Information regarding this copyrighted instrument may be obtained from:

Douglas Crowne, Ph.D.
Dept. of Psychology
University at Santa Cruz
Santa Cruz, CA 95060

David Marlowe, Ph.D.
Stevenson College
Univ. of California at Santa Cruz
Santa Cruz, CA 95060



Advancing psychology as a science, a profession, and as a means of promoting human welfare

November 13, 1989

Pat Meyer
2500 Locust Lane
Weatherford, OK 73096

Dear Ms. Meyer:

I am writing in response to your letter of November 6th concerning your interest in securing information and obtaining permission to use the Marlowe-Crowne Social Desirability Scale, originally published in a 1960 issue of APA's Journal of Consulting Psychology, in your doctoral research.

The American Psychological Association holds copyright for just the initial 28-year copyright term on material published in APA journals prior to 1978, and then the material enters into the public domain. This means that, as of 1989, APA-copyrighted material published in APA journals prior to 1961 is now in the public domain and can be used with no permission required. Please note that the Marlowe-Crowne Social Desirability Scale, which was originally published and copyrighted by APA in 1960, falls within this category. Therefore, you are free to use the scale, as originally published in the 1960 APA journal article, in your research without securing permission.

However, as a matter of practice, APA generally refers all interested parties who wish to use test instruments (i.e., scales, questionnaires, test items) directly to the authors, since we have no information available regarding use of test instruments than that which is actually published in the APA journal article itself. Additionally, there are some circumstances in which test instruments, which were originally APA-copyrighted and then entered into the public domain, become part of professionally developed tests such as those sold by commercial test publishers. The authors would be the best source of this information.

For your information, I am providing you with addresses for both Dr. Crown and Dr. Marlowe as follows:

Douglas Crown, Ph.D.
Department of Psychology, University of Waterloo
Waterloo, Ontario N2L 3G1 CANADA

David Marlowe, Ph.D.
Stevenson College, University of California @ Santa Cruz
Santa Cruz, CA 95060

Good luck with your research!

Sincerely,

Donna J. Beavers
Copyrights & Permissions
APA Publications

APPENDIX J
Address Form

Address Form

Code _____

Thank you for participating in this study about the effects of chronic illness on patients and their families. You will be expected to respond to each item on the questionnaires provided by the researcher. The information will be used by doctors and nurses to help other patients who are experiencing a chronic illness.

The information obtained will be used in the following ways:

- Anonymity will be guaranteed by the reporting of information as a group
- Your name, address, and patient number will not be written, printed, or publicized in any form
- All records of your participation will remain confidential
- To help patients experiencing chronic illness

You may withdraw from this study at anytime. If you should choose to withdraw from the study, all the information collected from you will be destroyed.

Date: _____

Name: _____

Address: _____

I would like to receive a copy of the final report.

Yes _____

No _____

APPENDIX K

Diabetic Information Sheet

___ Code

Diabetic Information Sheet

Please fill in the blank or check the appropriate response.

1. ___ Male ___ Female

2. ___ Age

3. ___ Years of education (8 years, 12 years, etc.)

4. Occupation _____

5. I have had Diabetes Mellitus for

- ___ Less than one month
- ___ One month
- ___ Two months
- ___ Three months
- ___ More than three months

6. I take insulin injections

- ___ Once a day
- ___ Twice a day
- ___ More than twice a day
- ___ Not at all

7. I give my own insulin injections

- ___ Yes
- ___ No
- ___ I'm learning how to give my own injections

8. I take oral hypoglycemic agents to control my blood sugar

- ___ Yes
- ___ No

9. I check my urine for sugar

- ☐ Once a day
 - ☐ Three to four times a day
 - ☐ Once a week
 - ☐ When I am having a problem
 - ☐ Not at all
 - ☐ Other (Please Explain) _____
-
-

10. I check my blood sugar

- ☐ Once a day
 - ☐ more than once a day
 - ☐ Once a week
 - ☐ When I think I'm having a problem
 - ☐ Not at all
 - ☐ Other (Please Explain) _____
-
-

11. I am on a special diet for my diabetes

- ☐ Yes
- ☐ No

12. I have answered these questions the way

- ☐ I actually do things
- ☐ The doctor wants me to do things

13. Besides diabetes I have been told I have the following conditions.

APPENDIX L

Six-Weeks Follow-up Survey Letter

Dear Diabetic:

Thank you for participating in my research concerning how people feel about chronic illness. Enclosed you will find the final questionnaire for you to complete.

You will probably notice this second questionnaire is much shorter and some of the questions are similar, or the same, as some of the questions on the first questionnaire. Please answer all the questions and mail it back in the self-addressed stamped envelope provided.

Thank you for your time,

Pat Meyer, RN