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# THE RELATIONSHIP OF LOCUS OF CONTROL AND COMPLIANCE IN NURSE-PRACTITIONER-MANAGED HYPERTENSION CLINICS

Teresita Maria Smith

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# THE RELATIONSHIP OF LOCUS OF CONTROL AND COMPLIANCE IN NURSE-PRACTITIONER-MANAGED HYPERTENSION CLINICS

submitted by

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THE RELATIONSHIP OF LOCUS OF CONTROL AND COMPLIANCE IN NURSE-PRACTITIONER-MANAGED HYPERTENSION CLINICS

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## ABSTRACT

**The Relationship of Locus of Control and Compliance in Nurse-Practitioner-Managed Hypertension Clinics**

Hypertension is a chronic disease requiring lifelong therapy. Noncompliance in hypertensive clients is a real and devastating problem. The purpose of this research was to study, by descriptive and retrospective research designs, the relationship between internal-external locus of control and compliance in nurse-practitioner-managed hypertension clinics. The study provided information to enhance the primary nursing care of hypertensive clients and to improve the client education and counseling provided in the hypertension program. The sample consisted of 101 clients enrolled in the Stroke and Heart Attack Prevention Program (SHAPP) in the East Central Health District of Georgia. Three instruments were utilized in this study: the Adult Nowicki-Strickland Internal-External Locus of Control Scale (ANSIE) to categorize the clients as internal controls or external controls, the Lifestyle Questionnaire of Hypertension Risk Factors to classify these clients as compliers or noncompliers to the prescribed regimen, and the Instrument for Medical Chart Review to collect demographic data. Methods of data analysis included frequencies and

percentages with chi-square analyses and inferential analyses using the Pearson Product Moment Correlation Coefficient. The findings revealed that the majority of the SHAPP clients (88.1%) were compliant with their prescribed regimen. The study did not support the hypothesis that hypertensive clients cared for in nurse-practitioner-managed SHAPP clinics exhibiting internal locus of control were more compliant in following a prescribed hypertension regimen than hypertensive clients exhibiting external locus of control ($r = -.03$, $p = .37$). It is recommended that further research is needed to identify psychosocial and behavioral factors in differentiating between compliant and noncompliant hypertensive clients, to develop valid and reliable health belief instruments, and to design definitive interventions for improving compliance behavior.

# CHAPTER I

## Overview of the Study

Chapter I is an overview of the study. It includes an introduction to the problem, the purpose of the study, and the need for the study. The research hypotheses, assumptions and limitations, operational definitions, and an overview of the methodology are provided. The overview of the methodology contains the research design, setting, population, description of the instruments, and the methods of data analysis.

### Introduction to the Problem

Cardiovascular disease ranks as the number one killer in America today (American Heart Association, 1988). In 1987, deaths due to cardiovascular diseases in East Central Health District (ECHD) accounted for 6.8% of the total cardiovascular disease deaths in Georgia (Bachtel, 1989).

Hypertension is a major chronic health problem which affects some 60 million Americans ages six years and older (American Heart Association, 1988). In Georgia, this "silent killer" has been identified as the direct cause of approximately 900 deaths (4%) of all cardiovascular disease deaths and as a significant causative factor in the more than 21 thousand cardiovascular diseases suffered annually

(American Heart Association, 1990).

The prevalence of hypertension, like many other health conditions, varies among the racial and ethnic groups which comprise the population of the United States (Plawecki & Mallory, 1987). Historically, approximately one of every four black Americans and about one of every six white Americans are hypertensive (Plawecki & Mallory, 1987). Green (1988) cited that black Americans were twice as likely as whites to have moderate hypertension and three times as likely to have severe hypertension. The reasons for the consistently higher incidence of hypertension among black Americans are not known at this time. Theories include such diverse factors as socioeconomic status, weight, and heavy consumption of processed foods high in sodium and low in potassium in conjunction with a genetic predisposition for hypertension (Ames, 1985).

Despite an ongoing effort to control hypertension in the United States, the disease prevails as a significant public health problem. Uncontrolled hypertension is associated with increased morbidity and mortality. However, while the sequelae of hypertension can be devastating, control of the disease is possible for most individuals. Controlling hypertension can reduce the probability of developing associated complications such as end stage renal disease, cardiovascular problems, and cerebrovascular conditions (National High Blood Pressure Education Program

[NHBPEP], 1988; Plawecki & Mallory, 1987). However, achievement of control requires a long-term, often vigorous, therapeutic regimen that may include alterations in diet and lifestyle activities. Consequently, noncompliance with prescribed treatment regimen is a serious, widespread problem among hypertensive clients (Cronin, 1986). Noncompliance adversely affects health and, therefore, presents as a significant problem for health care professionals working with hypertensive clients (Bartucci, Perez, Pugsley, & Lombardo, 1987).

Studies have shown that nurses can dramatically increase client cooperation and compliance with the health care regimen through systematic monitoring and education (Dickson, Robb, Hersman, Ryan, & Dahl, 1983). Community health nurses are in strategic positions to screen, evaluate, monitor, and facilitate adherence to the health care plan (Cronin, 1986). Nurse practitioners working in clinical settings are instrumental in initiating therapeutic care, monitoring regularly, and providing ongoing, educational counseling for hypertensive clients. In essence, nurse practitioners providing health care services in rural communities are of vital importance in maintaining compliance among hypertensive clients.

Knowledge of factors by nurse practitioners which may affect or predict noncompliance is essential for effective patient care. This knowledge could make it possible to

identify specific areas of emphasis in the treatment intervention and health education of hypertensive clients, thereby, increasing their compliance.

## Purpose of the Study

The purpose of this research was to study the relationship between locus of control and compliance for clients in the nurse-practitioner-managed hypertension clinics in the East Central Health District of Georgia. Another purpose of this research study was to determine the rate of compliance to therapeutic regimen by these hypertensive clients. Knowledge of factors relating to locus of control and its effects on compliance will allow the health care providers to adapt and incorporate the study findings into the current education and counseling provided in the hypertension program. Education of hypertensive clients offers good prospects toward increasing compliance; therefore, a major outcome is toward helping clients to gain insight into their hypertension regimen.

## Need for the Study

Lack of compliance with a therapeutic regimen is a major problem among clients with hypertension in all age groups because first, the condition is largely asymptomatic and, second, the regimen is a permanent change in lifestyle that is difficult to maintain. For clients with symptomatic disease, most studies have shown that approximately 20% of the clients did not keep their appointments and that about

50% did not take their medications as directed (Itano et al., 1983). When clients were asymptomatic, failure to keep appointments was as high as 50%, and when medications were prescribed for long-term maintenance therapy, noncompliance rates were about 60% in most studies (Itano et al., 1983). In the East Central Health District of Georgia, appointment failures for all hypertensive clients, both symptomatic and asymptomatic, are estimated to be as low as 5% to as high as 50% during a given clinic day. Thus, noncompliance is a significant problem in the overall care of hypertensive clients.

## Research Hypotheses

Two research hypotheses for this study were identified based on the stated goals of the research endeavor:

1. More than 50% of the clients attending the nurse-practitioner-managed Stroke and Heart Attack Prevention Program (SHAPP) clinics will demonstrate compliance with their prescribed hypertension regimen.

2. Hypertensive clients cared for in nurse-practitioner-managed SHAPP clinics exhibiting internal locus of control will be more compliant in following a prescribed hypertension regimen than hypertensive clients exhibiting external locus of control.

## Assumptions

The following assumptions were made for this research study:

1. The study subjects were honest in answering the questionnaires.

2. The nurse practitioners managing the SHAPP clinics were consistent in prescribing the hypertension regimen for their hypertensive clients.

## Limitations

This study had the following limitations:

1. The sample was selected on a convenient basis.

2. The instrument used to evaluate compliance of hypertensive clients, developed by the researcher, lacked proven validity and reliability.

3. The interview format may have affected the clients' responses to the questionnaire because the clients were aware that the researcher was evaluating their compliance to the hypertension regimen and they may have responded as they felt the researcher would like them to respond (Hawthorne effect).

4. The information supplied by the hypertensive clients cared for by the researcher may be biased.

## Operational Definitions

Several operational definitions were utilized in this study. These operational definitions include:

Hypertension is defined as an average diastolic blood pressure of 90 mmHg or greater or systolic blood pressure of 140 mmHg or greater, from multiple blood pressure measurements taken on at least two subsequent visits, following an initial screening (NHBPEP, 1988).

Compliance is the extent to which the client's behavior, in terms of taking medication, following diet, or executing other lifestyle changes, coincides with the clinical prescription (Cronin, 1986).

A nurse practitioner is a nationally certified family nurse practitioner with specialized training in the area of hypertension functioning under medical protocol.

The Stroke and Heart Attack Prevention Program (SHAPP) is the state funded hypertension clinic provided by the county health department for the general public. The SHAPP, managed by nurse practitioners, provides free antihypertensive medications to eligible hypertensive clients.

A prescribed hypertension regimen is the hypertension therapeutic plan established by the SHAPP clinic for its clients. It describes the appropriate diet, exercise, relaxation technique, and lifestyle modifications which are adjusted to improve or maintain health. This may include the prescribing of medications or specific procedures, such as urine testing.

Internal locus of control or internality refers to an individual's beliefs that he or she has control over the reinforcements (outcomes) that occur relative to his or her behavior (actions) (Rotter, 1966).

External locus of control or externality refers to the beliefs that one has little control over the occurrence of reinforcements (outcomes) or that forces beyond one's control determine the occurrence of reinforcements or outcomes (Rotter, 1966).

## Methodology

This section presents a brief overview of the methodology used in the study. The research design, setting, population, description of the instruments, and the methods of data analysis are discussed.

### Research Design

The research design was both descriptive and retrospective. Descriptive data concerning the clients' locus of control and compliance behaviors were collected using structured interviews. Retrospective data were collected by utilizing medical chart reviews to identify the clients' compliance behaviors and demographic information.

Both client interviews and medical chart reviews were undertaken during a 3-month period from November 1, 1990, to January 31, 1991, as clients were seen during their regularly scheduled visits to the SHAPP clinics. The medical charts were examined from the date of the clients'

initial admission to the SHAPP through the date of their last visit to the clinic within this time period.

## Setting

The study was conducted within the SHAPP clinics of the East Central Health District (ECHD) of Georgia. The ECHD is located in mideast Georgia and is comprised of 13 counties: Burke, Columbia, Emanuel, Glascock, Jefferson, Jenkins, Lincoln, McDuffie, Richmond, Screven, Taliaferro, Warren, and Wilkes. Figure 1 shows the 13 counties of the ECHD and their location within the state of Georgia.

## Population

The research population consisted of all of the clients actively enrolled in the SHAPP clinics in the ECHD. During the 3-month period of data collection, the number of the SHAPP clients totaled 236.

### Sample.

A convenience sample of hypertensive clients was selected using English speaking clients who had been enrolled in the SHAPP clinic for a minimum of one year prior to the data collection period. Clients were screened as physically and psychologically able to participate in the study. The investigator had to be present during the client's clinic visit to be able to administer the research instruments.

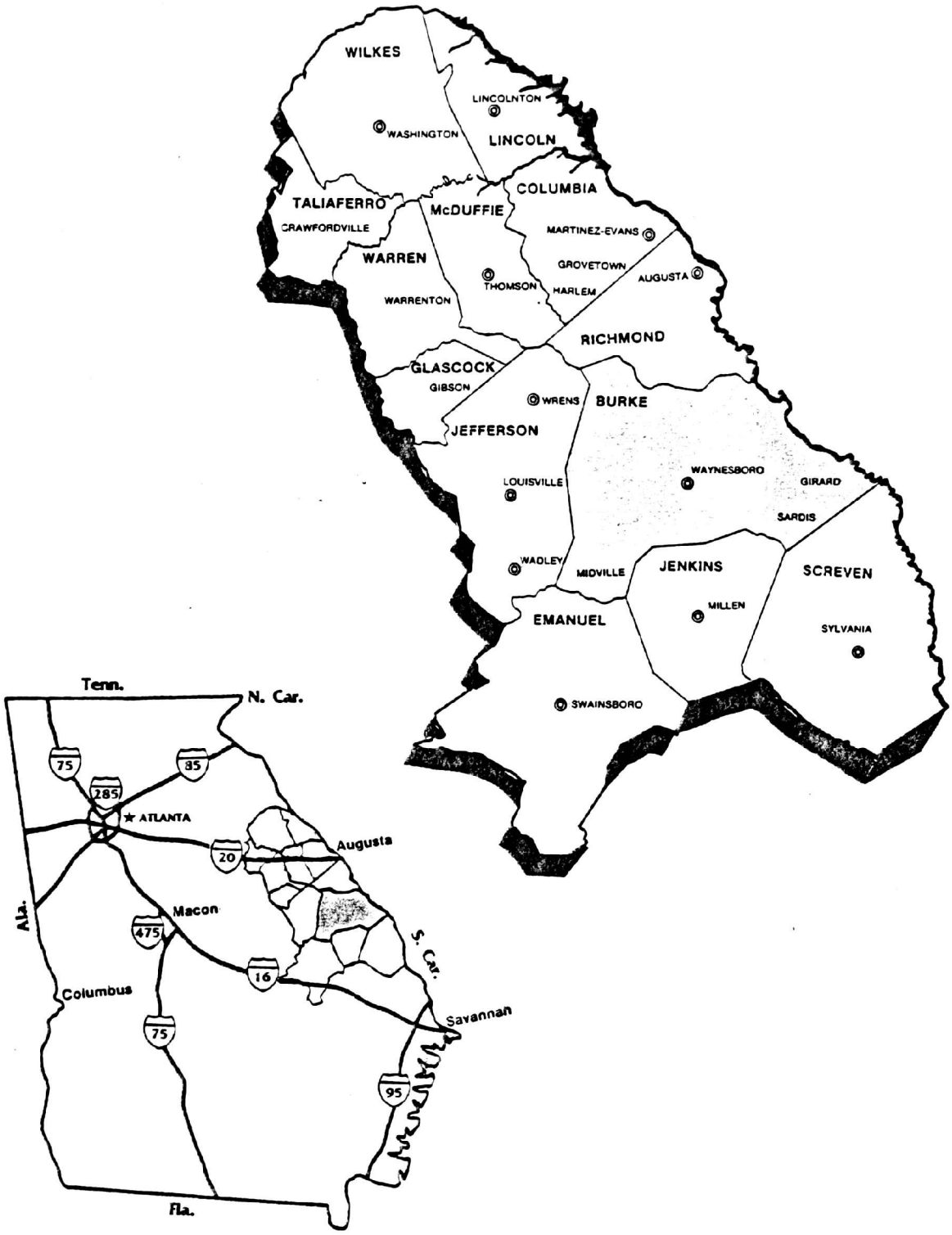



Figure 1. The 13 counties of the East Central Health District and their location in Georgia.

## Instruments

Three data collection instruments were utilized in this study: The Adult Nowicki-Strickland Internal-External Locus of Control Scale (ANSIE), and two researcher-designed instruments, Lifestyle Questionnaire of Hypertension Risk Factors and Instrument for Medical Chart Review for collecting demographic data (see Appendices A, B, & C).

## Data Analysis

Data were analyzed using descriptive and inferential statistical measures. The SPSS/PC+ Studentware Program (Norusis, 1988) was used for the statistical analysis. The descriptive measures used in the study were: frequencies and percentages with chi-square analysis. Inferential analysis was performed using the Pearson Product Moment Correlation Coefficient. The analysis is reported in narrative and graphic form.

# Organization of the Study

The plan for reporting this study includes the presentation of the following five chapters. The specific information to be discussed in each chapter is as follows.

Chapter I is an overview of the study. It includes an introduction to the problem, the purpose of the study, and the need for the study. The research hypotheses, assumptions and limitations, operational definitions, and an overview of the methodology are provided. The overview of the methodology contains the research design, setting,

population, description of the instruments, and the methods of data analysis.

Chapter II presents a thorough review of the literature pertaining to the issues of compliance and locus of control. The impact of nurse practitioner care on patient compliance and the effect of compliance on motivation and education are also examined through a study of the literature.

Chapter III discusses the research design, methods, and procedures used in the study. The research hypotheses, setting, the role of the investigator, and the selection of the sample are presented. The plan for human subject protection, description of the instruments, the procedure for data collection, and the methods of data analysis are described.

Chapter IV presents the findings and results of the statistical analyses of the research data. Descriptive statistics for the sample group are presented. Evaluation and discussion of the research hypotheses are provided. Also included are additional findings and strengths and limitations of the study.

Chapter V presents conclusions within the limitations of the study. Implications for interventions in nurse-practitioner-managed hypertension clinics are discussed. Recommendations for future research projects in nursing management for hypertensive clients are addressed.

# CHAPTER II

## Review of the Literature

Chapter II presents a thorough review of the literature pertaining to the issues of compliance and locus of control. The impact of nurse practitioner care on patient compliance and the effect of compliance on motivation and education are also examined through a study of the literature.

### Compliance

Hypertension is a primary risk factor in cardiovascular and cerebrovascular diseases. Continued efforts toward detection, prevention, education, and treatment of hypertension are crucial to the health and well-being of millions of Americans (Ames, 1985). Studies suggested that some of the risk factors for essential hypertension included: genetic factors, obesity, lack of exercise, excessive salt intake, calcium intake, stress, alcohol consumption, cigarette smoking, and compliance to prescribed antihypertensive drugs (MacDonald, Sawatzky, & Wilson, 1988; Sloan, 1985). Years of clinical practice had demonstrated that, in the majority of clinical cases, hypertension could be controlled through compliance with appropriate therapeutic regimens (Plawecki & Mallory, 1987). According to Plawecki and Mallory (1987), in most cases, uncontrolled

hypertension was a result of clients not complying with their prescribed therapeutic regimen.

Given and Given (1983) defined compliance behaviors as "those [behaviors] an individual performs, to some acceptable level, at the suggestion of, with the encouragement of, or in agreement with a health care provider, in order to maintain or improve health status" (p. 172). In short, compliance is the extent to which an individual's behavior coincides with medical or health advice (Black, 1988; Comoss, 1988). Most research studies have interpreted compliance to mean not only a patient's compliance to current structured therapeutic regimen but also to subsequent follow-up care (Comoss, 1988).

Direct measures of compliance, such as blood levels, usually are neither available nor feasible in the routine nursing care of hypertensive clients (Craig, 1985). Consequently, nurses will continue to use indirect measures in their assessments. One practical and simple approach to measuring compliance is to ask the patient directly. For example, Haynes et al. (1980) compared the accuracy of several compliance measures (interview, blood pressure, and serum uric acid) with the accuracy of pill counts. Pill count is the comparison between the amount of medication remaining in the patient's bottle and the amount that should have remained (Craig, 1985). Haynes et al. (1980) found that patient interview had the highest correlation ($r = .74$)

with the pill count. Craig (1985) found that patient interview was the most sensitive and accurate measure of compliance and correctly classified 85% of the patients interviewed as to compliant or noncompliant.

The National Heart, Lung, and Blood Institute estimated that half of hypertensive patients drop out of health care treatment within a year (Green, 1988). As many as two-thirds of all hypertensive patients fail to achieve or maintain normal blood pressure after the initiation of drug therapy because they drop out of treatment or neglect to follow their pharmacologic regimen (D'Epiro, 1986). Compliance among black hypertensives is believed to be much lower than those of white hypertensives (Green, 1988).

Noncompliance with the therapeutic regimen is unquestionably the most frequent reason for treatment failure (Goodman, 1987). The rationale for this behavior needs to be understood by health care providers so that appropriate action can be taken. Goodman (1987) cited the following as possible explanations for noncompliant behaviors:

1. The patient is ignorant of the potential long-term sequelae of poorly controlled hypertension.

2. Symptoms of even severely elevated blood pressure are lacking, whereas the administered medications have adverse effects (true side effects as well as placebo reactions).

3. The regimen is complicated and/or inconvenient to follow.

Ames (1985) recognized the following as some of the reasons for not complying to the hypertension regimen:

1. The patient cannot handle the financial burden of purchasing medications, traveling to and from the clinic, or taking time off from work to attend clinic appointments.

2. There is a lack of systematic guidelines for treatment and follow-up in treatment facilities.

3. Rural residents are more often poorly educated, have less money, and lack access to transportation to clinic.

4. The patients have other medical conditions, such as alcohol abuse, that hinder their ability to comply with the health care plan.

5. There is an unstable family environment, such as a marital conflict, or the patient has no support system at home.

Numerous variables have been studied in an attempt to determine factors related to health care compliance of individuals experiencing chronic illness (Cronin, 1986). Various studies have demonstrated that multiple factors may affect patient compliance to recommended therapeutic regimens. Researchers have investigated the relationship of the demographic characteristics of the client, features of the illness, and social-psychological variables to compliance behavior (Marston, 1970). Other studies have

looked at the nature and source of the therapeutic regimen and the qualities of the client-practitioner interaction (Sackett, Haynes, & Taylor, 1983), the client's health attitudes and motivations (Becker, Drachman, & Kirscht, 1974), and psychosocial adjustment to illness (DeVon & Powers, 1984). Several studies have evaluated compliance within the context of the Health Belief Model (Cronin, 1986; Pender, 1987; Redeker, 1988). In 1982, Dracup and Meleis proposed an interactional approach, the utilization of role theory, in the study of compliance, whereas Andreoli (1981) examined self-concept in relation to compliance. Generally, the findings of these studies have been inconsistent or contradictory and few associations have been found. Although Sackett et al. (1978) failed to support a significant correlation between patient education, knowledge about hypertension, and compliance, this aspect of care should not be ignored. Other studies indicated that some relationship existed between education and compliance or that only short-term compliance resulted from education about the disease (Ames, 1985).

Few studies have explored the relationship between intervention strategies and the effects that personality characteristics have upon compliance behavior, yet a critical element in the success of any program depends on the client's decision to control the hypertension and follow-up that decision with long-term compliance behavior

(Kerr, 1986). One such personality construct that has been related to health problems, such as hypertension, is locus of control (Harper, 1984; Kerr, 1986; Pender, 1985).

## Locus of Control

Locus of control is a construct derived from Rotter's social learning theory (Rotter, 1966). This theory states that the potential for a behavior (action) to occur in any specific psychological situation is a function of the expectancy that the behavior (action) will lead to a particular reinforcement (outcome) (Rotter, 1966; Wallston & Wallston, 1978). Locus of control simply refers to the individual's beliefs about whether or not a contingency (dependency) relationship exists between behavior (actions) and reinforcements (outcomes) (Rotter, 1966; Shillinger, 1983).

Locus of control implies that "individuals have a choice as to how they will behave, and before deciding on a particular action they first must consider both their valuation of the outcome (reinforcement value) and their estimation of the likelihood or probability of its occurring (expectancy)" (Shillinger, 1983, p. 58). Individuals develop both a general and specific expectancy. In any specific event, individuals determine their chances for success by assessing immediate situations (situational expectancy), but they are also influenced by what they have learned from past situations that seem similar to present

experiences (generalized expectancy) (Lefcourt, 1966; Rotter, 1966; Shillinger, 1983). Because such generalized expectancies also affect perceptions and interpretations given to current situations, the role of generalized expectations in determining behavior is of importance (Arakelian, 1980; Schillinger, 1983).

## Internal and External Locus of Control

Internal-external locus of control refers to the extent to which individuals perceive contingency (dependency) relationships between their actions and their outcomes (Robinson & Shaver, 1973; Rotter, 1966). When individuals perceive that they have some control or influence over their destinies, then this belief is labeled as internal control; that is, they believe that at least some control or influence resides within themselves (Robinson & Shaver, 1973; Rotter, 1966). External control, on the other hand, is when individuals believe that their outcomes are controlled, influenced, or determined by forces, agents, or factors extrinsic to themselves, for example, by fate, luck, chance, powerful others, or the unpredictable (Robinson & Shaver, 1973; Rotter, 1966). Through a continuous learning process, individuals come to expect that certain outcomes are a result either of their own behavior or of forces outside themselves (Shillinger, 1983).

One of the first studies on locus of control found that persons who were higher on internality were more

knowledgeable about their disease and its management (Kerr, 1986). Persons with internal locus of control (internals) were more actively involved, more autonomous in their decision making, and able to make better use of relevant information to promote health than were persons with external locus of control (externals) (Kerr, 1986). Other investigations have led to propositions that externality may be reflected as general passivity, lower productivity, and decreased endeavor among individuals (Neaves, 1989). Lefcourt (1966) found that individuals who were external controls were lacking in self-confidence or suffering from inferiority feelings. Thus, knowledge of locus of control expectancies together with knowledge about values should, theoretically, contribute to the prediction and explanation of health behavior (Wallston & Wallston, 1978).

## Impact of Locus of Control on Compliance

Demographic factors such as age, sex, and socioeconomic status may affect compliant behavior to some degree. However, these factors appear to have minimal influence on behavior when they are compared with the impact of the client's perception of his own health (Plawecki & Mallory, 1987). Thus, investigating the impact of the variables on health behavior may provide some insights into structuring health care regimens which directly affect health perception and consequently improve compliance.

The way a person perceives his ability to change or control his life has a major impact on his willingness or ability to comply with health regimens (Hussey & Gilliland, 1989). Locus of control theory has been used to analyze and predict which clients are more likely to comply with the therapeutic plan. Research suggested that internally oriented individuals were (a) more likely to be health oriented and to desire physical well-being, and (b) more likely to comply with recommended health regimens (Hussey & Gilliland, 1989). Another study indicated that internals were more likely to take preventive measures to keep themselves healthy and free from disease or the possibility of accident (Wallston & Wallston, 1978). In addition, Lewis, Morisky, and Flynn (1978) reported that among ambulatory hypertensive patients, the more internally oriented the patient and the higher the level of perceived home assistance in complying with prescribed medical regimen, the greater the level of self-reported compliant behavior. The drawback of this study was that the only measure of compliance was the reliance upon patient self-reporting (Itano et al., 1983). Thus, it would seem that clients with internal locus of control would pursue a program of health education that could enable them to participate actively in their management.

## Locus of Control and Motivation

Individuals complying with recommended regimens often are described by the health care practitioner as "motivated." Hussey and Gilliland (1989) defined motivation as an emotion that is aroused in response to a situational experience that is meaningful to the individual. Because motivation has the ability to initiate, sustain, and terminate behavior, motives of individuals can lead to desired actions (Comoss, 1988). In turn, what people believe about health and health care can influence their motivation. Locus of control and motivation are not the same concepts, but are stimulated by the same psychosocial, cognitive, and self-preservation influences (Hussey & Gilliland, 1989).

The degree of motivation exhibited by the individual may be a valid expression of locus of control beliefs. Persons with hypertension who have accepted their diagnosis, for example, demonstrate that they are motivated to control their hypertension by following dietary recommendations, maintaining adequate weight, exercising regularly, and avoiding risk factors such as cigarette smoking and drinking alcohol. These types of actions demonstrate internal locus of control and generally are interpreted by health care professionals as motivation (Hussey & Gilliland, 1983).

Learning about and understanding the prescribed hypertension therapeutic regimen is a fundamental necessity

for the client to be able to participate in his or her own care. What is more important is that the client can be motivated to act on the basis of information and that the client will indeed learn to comply with the regimen that is developed for him or her (Scalzi, Burke, & Greenland, 1980).

## The Impact of Nurse Practitioner Care on Patient Compliance

Health professionals have recognized that to assist clients in health promotion, they must be skillful in helping clients to comply with the regimes for prevention and/or treatment of the disease (Itano et al., 1983). Nurse practitioners often devote a significant amount of clinic time with clients, focusing on teaching and counseling in relation to their health problems. Flynn (1974) found that patients seen by nurse clinicians were more knowledgeable about the complications of their disease, more knowledgeable about what their specific diet, activities, and exercises included, and were able to demonstrate more correct behavior in taking their medications than patients seen by physicians.

Efforts to control hypertension strongly demonstrate the importance not only of an appropriate medical regimen, but also of an effective behavioral approach to managing hypertension (Bloom et al., 1987). Improving patient compliance through the use of patient counseling to supplement pharmacologic treatment has shown a difference in hypertension control rate (Bloom et al., 1987). One study

found that nurse practitioners obtained better control rates than the physicians in whose offices they practiced, an achievement that could not be explained by differences in patient characteristics or initial blood pressure levels (Bloom et al., 1987). Also in that study, nurse practitioners were more likely to prescribe such nonpharmacologic measures for hypertension control as low sodium and weight loss diets, dietary potassium supplements, exercise, and stress reduction; in contrast, physicians were more likely to prescribe drug therapy. Further, nurse practitioners spent more clinic time teaching patients about treatment regimens than did physicians (Bloom et al., 1987).

High compliance rates (80% control after 1 year) in work settings where free hypertensive treatment was supervised by a nurse practitioner was reported in still another study (Bloom et al., 1987). In working with low income and minority patients, whose hypertensive care is often complicated by other social and medical problems, nurse practitioners were able to modestly, although not significantly, reduce initial levels of elevated blood pressure (Bloom et al., 1987).

Past research studies have shown that nurse practitioners follow their patients more closely by scheduling more appointments than physicians (Ramsay, McKenzie, & Fish, 1982). While this may be the result of providing primary care, nurse practitioners do have greater

opportunity to monitor patients and patient compliance, particularly in blood pressure and dietary management. Thus, frequent supervision and monitoring by nurse practitioners may be one factor in increasing compliance of hypertensive patients (Ramsay, McKenzie, & Fish, 1982).

## Compliance, Motivation, and Education

Knowledge of one's disease and regimen, the motivation to achieve control, and the perception that compliance is useful in achieving control have been identified as predictors of compliance (Kerr, 1985). Knowledge does not directly lead to compliance, but clients cannot follow treatment regimens or implement lifestyle changes if they do not know what they entail. This relationship between knowledge and compliance is one of the most elusive in the study of compliance behaviors (Ballard, 1986). According to the National High Blood Pressure Education Program, patient education and counseling are basic components of therapeutic care for hypertension (Rocella, 1984). Health teaching should be an inherent part of any program to reduce and control hypertension. Reitz (1980) stated that the goal of any hypertension therapeutic and educational program should be the promotion of health. This involves the modification of lifestyle to prevent, control, or retard the risk factors relating to hypertension and, consequently, the disease process itself.

Implications for health education may be drawn from the concept of locus of control. Scales to measure locus of control may be used to evaluate health education programs (Wallston & Wallston, 1978). Nurse practitioners may want to encourage their clients to develop more internal beliefs regarding their hypertension. Clients may then begin to feel that they have control over their health care and, thereby, increase their compliance.

To enhance the compliance of hypertensive clients to their therapeutic regimen, it is important to promote intrinsic motivation and active participation (Comoss, 1988; Kerr, 1985). Helping the client to attain measurable goal setting, decision making, and personal commitment modalities within the hypertension regimen will greatly increase self-responsibility (Comoss, 1988). If individuals learn that they can manage these skills, they are more likely to actually practice the behaviors. This is a major step in confidence building and increasing compliance.

According to Plawecki and Mallory (1987), "the goal of nursing education must be to create a readiness to learn, to clearly communicate the relationship between non-compliance and disease causation and to recognize that persistence is necessary to promote any changes in beliefs and/or behavior" (p. 44). Health education increases patient knowledge of hypertension and promotes risk factor and lifestyle modification, thereby, improving compliance (Ames, 1985;

Pynn, 1986). Nurse practitioners, as patient educators, must recognize that information about hypertension that is simply supplied to the patient does not necessarily affect their health beliefs, behaviors, or compliance. Nurse practitioners, by emphasizing health teaching and counseling in relation to locus of control, may be effective in increasing compliance among hypertensive clients by helping them to better understand their illness and ways in which they might control their symptoms.

## Summary

Epidemiologic studies have shown hypertension to be an important risk factor in the sequelae of cardiovascular disease. A number of studies also suggested that hypertension can be controlled, and morbidity and mortality significantly reduced, either by the use of pharmacological regimens, or by combined drug, health education, and lifestyle change interventions (Morisky, DeMuth, Field-Fass, Green, & Levine, 1985). Motivating patients toward long-term compliance to therapeutic regimens, however, remains a substantial problem for patients and their families.

The concept of locus of control, which had its origin in social learning theory, may be useful in understanding compliance behaviors. Rotter's theory states that individuals, through a learning process, come to expect that certain outcomes are a result of either their actions or of

forces external to themselves (Rotter, 1966). Knowledge by health care providers of locus of control expectancies and the values that individuals place on their experiences can contribute to the explanation of the clients' health behaviors.

Locus of control theory has been used to analyze and predict which clients are more likely to comply with therapeutic regimen. In general, clients with an expectancy for internal control tend to exhibit characteristics associated with compliance behaviors, such as independent, decisive, and self-directive behaviors. Because these clients tend to follow their treatment plan more consistently, they are also looked upon as more highly motivated than their counterparts, the clients with external control.

Nurse practitioners play a significant role in educating the patient, and subsequently assessing the patient's compliance. Studies have indicated high compliance rates among hypertensive clients cared for by nurse practitioners as compared to those cared for by physicians (Bloom et al., 1987). Reasons for this may be due to the common practice of nurse practitioners in frequently monitoring and supervising of clients, providing individualized patient education, and counseling continuously regarding specific problems or concerns of their clients.

Patient education and counseling are basic components of therapeutic care for hypertension according to the National High Blood Pressure Education Program (Rocella, 1984). Health education increases the patient's knowledge of hypertension and promotes positive risk factor, lifestyle modification interventions that directly affect compliance. Thus, nurse practitioners, by providing education and counseling to their hypertensive clients, help to serve as catalysts in improving health care compliance.

Chapter III presents a discussion of the research design and procedures to support the proposed hypotheses. Methods for data collection and analysis are explored.

# CHAPTER III

## Methodology

Chapter III discusses the research design, methods, and procedures used in the study. The research hypotheses, setting, the role of the investigator, and the selection of the sample are presented. The plan for human subject protection, description of the instruments, the procedure for data collection, and the methods of data analysis are described.

### Research Hypotheses

Two research hypotheses were proposed to study the relationship between locus of control and compliance in the nurse-practitioner-managed hypertension clinics in the East Central Health District (ECHD). The research hypotheses studied were:

1. More than 50% of the clients attending the nurse-practitioner-managed Stroke and Heart Attack Prevention Program (SHAPP) clinics will demonstrate compliance with their prescribed hypertension regimen.

2. Hypertensive clients cared for in nurse-practitioner-managed SHAPP clinics exhibiting internal locus of control will be more compliant in following a prescribed hypertension regimen than hypertensive clients exhibiting

external locus of control.

## Research Design

The research design was both descriptive and retrospective. Descriptive data concerning the clients' locus of control and compliance behaviors were collected using structured interviews. Retrospective data were collected by utilizing medical chart reviews to identify the clients' compliance behaviors and demographic information. The structured interviews provided identification of the clients' internal or external locus of control. The structured interviews along with the retrospective medical chart reviews provided data which identified the clients as compliant or noncompliant to the hypertension regimen. The clients' demographic data were obtained through both structured interviews and retrospective chart reviews.

Both client interviews and medical chart reviews were undertaken during a 3-month period from November 1, 1990, to January 31, 1991, during regularly scheduled visits by clients to the SHAPP clinics. The medical charts were examined from the date of the clients' initial admission to the SHAPP through the date of their last visit to the clinic within the time period of the research study.

## Setting

The study was conducted within the hypertension clinics of the East Central Health District (ECHD) of Georgia. The East Central Health District, or Health District 6, is

located in mideast Georgia. Health District 6 is comprised of 13 counties: Burke, Columbia, Emanuel, Glascock, Jefferson, Jenkins, Lincoln, McDuffie, Richmond, Screven, Taliferro, Warren, and Wilkes (see Figure 1). A public health department with at least one clinic site is available in each county. The East Central Health District has a hypertension program, the Stroke and Heart Attack Prevention Program (SHAPP) in every county within the public health department, with the exception of Jefferson and Jenkins Counties. Hypertensive clients from Jefferson County utilize Burke County's SHAPP clinics, while Jenkins County clients receive hypertension care in Screven County. This research study was conducted in the SHAPP clinics during the scheduled clinic days within the 3-month period of November 1, 1990, through January 31, 1991. A period of 3 months was designated as a sufficient time period for the research data collection as most hypertensive clients in the SHAPP who are on maintenance therapy are being evaluated at 3- to 4-month intervals.

The Stroke and Heart Attack Prevention Program (SHAPP) is a state funded hypertension detection and control program in which clients needing antihypertensive drugs receive their medication without cost. The purpose of the SHAPP is to reduce morbidity and mortality associated with stroke, heart disease, and renal failure in adults by identifying those at risk and giving them the opportunity to modify risk

behavior through lifestyle changes and preventive medical therapy (Georgia Department of Human Resources, 1985). Each county's Board of Health is responsible for establishing the fee-for-service charges for their local SHAPP clinic. Most counties utilize the sliding scale system in which clients pay for services according to their annual or monthly income. Initially, the majority of the SHAPP clinics offered hypertensive care only to low income clients or those who paid nothing according to the sliding scale system. It has only been within the last year that some of the county boards of health have allowed full-paying clients to utilize the SHAPP clinics. Therefore, all of the eligible participants who met criteria to participate in this research study were low income or nonpaying hypertensive clients.

Health District 6 SHAPP clinics are staffed by a clinical nurse specialist, who is the District SHAPP Coordinator, and four family nurse practitioners (FNPs), all of whom have had additional training in hypertension. These nurses function under medical protocol. The medical consultant for the program is a chief cardiologist at a southern medical university. Two of the nurse practitioners (NPs) remain stationary, providing the SHAPP clinics within the counties in which they are employed--Burke and Columbia. The other two nurse practitioners are district employees who travel to the other nine counties that hold the SHAPP

clinics. The SHAPP Coordinator attends most of the SHAPP clinics and shares the patient load with the FNPs. Due to the lack of trained NPs and nurses in the ECHD, the SHAPP clinics are provided on a limited number of days within the month in each county.

The Stroke and Heart Attack Prevention Program provides both nonpharmacologic and pharmacologic management for the therapeutic treatment of hypertensive clients. The nonpharmacologic management focuses on weight reduction, aerobic exercise, dietary restriction of sodium, modification of dietary fats, restriction of alcohol, tobacco avoidance, and stress relaxation techniques. If nonpharmacologic measures alone do not control blood pressure adequately, then the stepped-care approach to drug therapy is considered on an individual basis.

In order to facilitate the research study, the researcher wrote a letter to the Director of Nursing at the East Central Health District requesting permission to interview clients and to perform a retrospective chart review for research purposes (see Appendix D). The nursing director submitted the request to the Human Research Review Board of the Georgia Department of Human Resources. The Review Board granted approval for the research to be carried out (see Appendix E).

## The Role of the Investigator

The investigator is one of the nurse practitioners who manages the SHAPP clinic in one of the counties in the East Central Health District. She administered the research instruments to all of the eligible SHAPP clients and conducted the retrospective chart reviews. Scores for locus of control and compliance were tallied by hand by the investigator. Also, the researcher tabulated the demographic statistics and performed statistical analysis on the computer.

## Population

The research population consisted of all of the clients actively enrolled in the SHAPP clinics in the East Central Health District. During the 3-month data collection period, the number of active SHAPP clients totaled 236 adults (18 years of age or older). Figure 2 shows the distribution of the population in the counties of the ECHD.

### Sample

A convenience sample of hypertensive clients was selected using the following criteria:

1. Medical chart review confirmation that the client had been enrolled in the SHAPP clinic for a minimum of one year prior to the data collection period (prior to November 1, 1990).

2. Client's ability to speak and understand the English language.

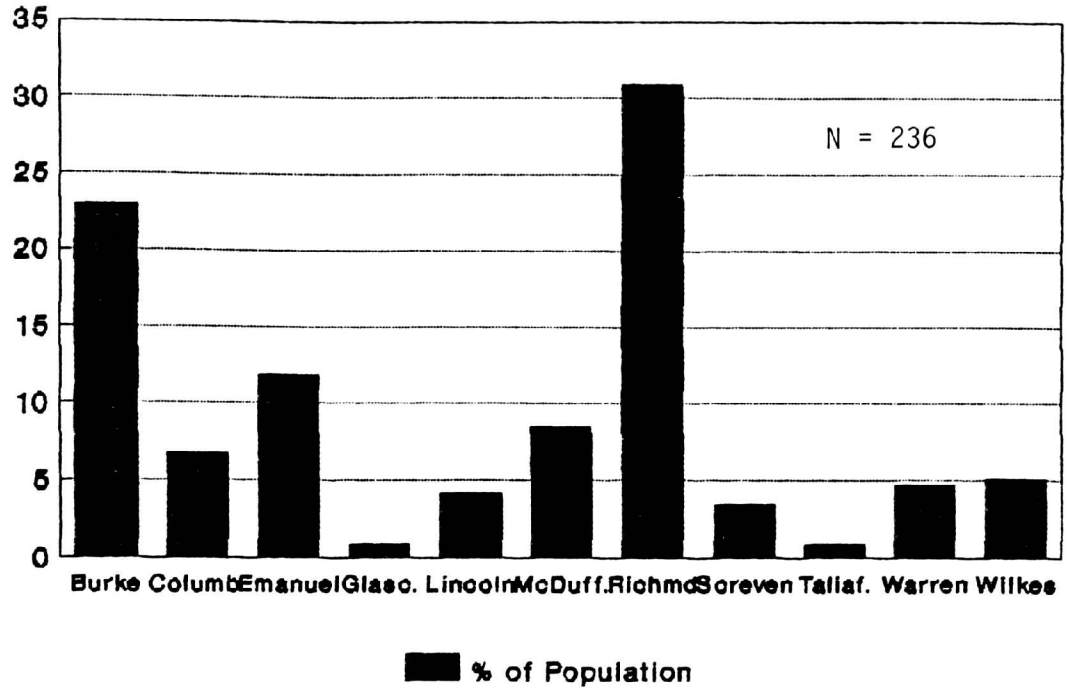



Figure 2. Distribution of the population in the counties of the East Central Health District.

3. Client's physical and psychological ability to participate in the study.

4. Investigator's presence during the client's clinic visit in order to be able to administer the research instruments on an individual basis.

The sample consisted of 101 clients (42.8%) of the SHAPP population. Of the 135 SHAPP clients (57.2%) who did not participate in the research study, there were 33.1% new clients (enrolled in the SHAPP for less than 1 year), 9.3% missed their appointments, 6.4% were not given appointments during the research time period, 5.9% of the clients who

kept their appointments were not interviewed because the researcher could not attend the SHAPP clinics due to conflicts in her schedule, 1.3% of the population who kept their appointments could not stay to be interviewed, and 1.3% who kept their appointments refused to be interviewed. Figure 3 represents the distribution of the sample in the counties of the East Central Health District.

## Human Subject Protection

Research at Georgia Southern University that involves human subject participation is conducted under the scrutiny of the Institutional Review Board (IRB). A copy of the research proposal and research instruments were submitted to

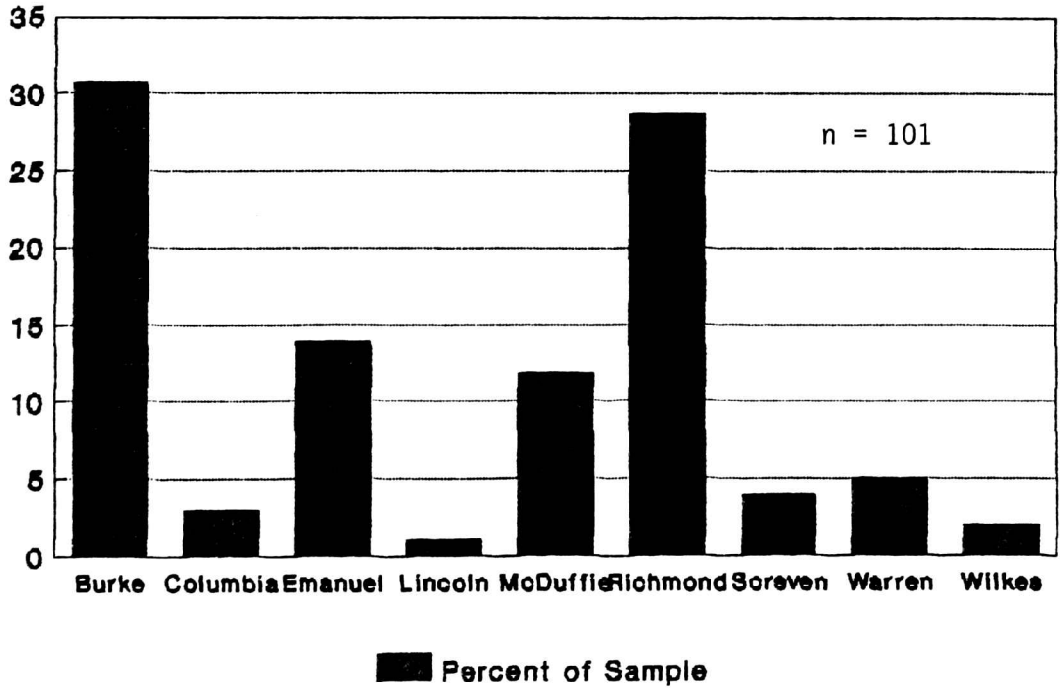



Figure 3. Distribution of the sample in the counties of the East Central Health District.

the IRB along with the approval form. The review board determined that there was minimal human subject risk and approval to conduct the study was granted (see Appendix F). Confidentiality was maintained throughout the study. The data collection instruments were coded to protect the identity of the participants. It is not possible to identify the subjects from the reports of the study.

## Data Collection Instruments

Three data collection instruments were utilized in this study: The Adult Nowicki-Strickland Internal-External Locus of Control Scale (ANSIE), and two researcher-designed instruments, Lifestyle Questionnaire of Hypertension Risk Factors and the Instrument for Medical Chart Review to collect demographic data. The ANSIE (see Appendix A) was administered by interview to identify the locus of control of each participant. The Lifestyle Questionnaire of Hypertension Risk Factors (see Appendix B) and the Instrument for Medical Chart Review (see Appendix C) were developed to obtain information through both client interview and review of the medical chart. The Lifestyle Questionnaire was administered to identify the clients' compliance with their hypertension therapeutic regimen. The results of the ANSIE were compared with the results of the Lifestyle Questionnaire to determine the relationship between the clients' locus of control and compliance.

Adult Nowicki-Strickland Internal-External Locus of Control Instrument (ANSIE)

Permission was obtained from Dr. Stephen Nowicki of Emory University to use the Adult Nowicki-Strickland Internal-External Locus of Control Instrument (ANSIE) (see Appendix A). The ANSIE scale was designed to assess the construct of locus of control of reinforcement (Nowicki & Strickland, 1973). The development of Nowicki and Strickland's scale was greatly influenced by Rotter's locus of control scale (Rotter, 1966).

The Rotter scale is the most widely used test in the realm of locus of control literature (Robinson & Shaver, 1973). Although the historical significance of the Rotter scale cannot be denied, it has received significant criticism among researchers. One criticism is related to Rotter's forced choice format and difficult reading level which makes it inappropriate for a large segment of the noncollege adult population (Nowicki & Duke, 1974). Despite the problems with Rotter's Internal-External (IE) Locus of Control Scale, it will most likely continue to be the measure of IE because it is so thoroughly ingrained in the literature (Robinson & Shaver, 1973).

In 1969, Nowicki and Strickland (1973) constructed and published the Children's Nowicki-Strickland Internal-External Locus of Control Scale (CNSIE). In order to avoid the shortcomings of the Rotter scale, Nowicki and Strickland

(1973) modified the CNSIE and developed the Adult Nowicki-Strickland Internal-External Locus of Control Scale (ANSIE). The ANSIE is designed to be taken by individuals with a fifth grade or above reading level (Finch, Kendall, Spirito, & Mikulka, 1981; Nowicki & Strickland, 1973).

Nowicki and Duke (1974) reported split-half reliabilities in the .60s for college (n = 156) and community samples (n = 33) as estimates of internal consistency. Test-retest reliability for college subjects over a 6-week period was found to be .83 (n = 48) (Nowicki & Duke, 1974). To test for discriminative validity, two samples of college students (n = 48, n = 68) completed the Marlowe-Crowne Social Desirability scale. Consistent with the requirements of discriminative validity, ANSIE scores were not related to scores from the social desirability measure (r = .10, df = 47, r = .06, df = 67) (Nowicki & Duke, 1974). It was also found that the relation between ANSIE and Scholastic Aptitude Test scores was not significant (n = 48, r = .11). Nowicki and Duke (1974) administered both the ANSIE and the Rotter scales to two college and one community adult samples to ascertain the relation between the two scales. In all three samples, the correlations between the two measures were significant and consistent, assessing the same construct (r = .68, df = 47, $p<.01$, r = .48, df = 37, $p<.01$).

The ANSIE consists of 40 items which are answered either yes or no. The ANSIE's abbreviated version of 19 questions, selected for grades 3-6 reading levels, was utilized in this study for easier administration.

Scoring of the Nowicki-Strickland Locus of Control Scale was as follows:

1. The score was the total number of external responses that a subject chose. A "Yes" or "No" answer was keyed for each question and was the external response for that question.

2. Each time the subject responded in agreement with the keyed "Yes" or "No", it was considered to be one external response.

3. The score was the total number of agreements with the keyed "Yes" or "No".

4. Scores could range from 0 (internal control) to 19 (external control).

5. The higher the score, the more external the client's locus of control.

**Lifestyle Questionnaire of Hypertension Risk Factors**

The second instrument used in this study was the Lifestyle Questionnaire of Hypertension Risk Factors (see Appendix B). This instrument was developed by the researcher which was adapted from a tool by Pynn (1986). The instrument was used in a pilot study of 50 clients while the investigator was enrolled in a graduate nursing research

course. During that time, the questionnaire was reviewed for face and content validity and clarity by five nursing colleagues prior to administration. The instrument was then modified based on the feedback received from the nursing experts. Some of the terminology used in the questionnaire was revised simplifying the reading level. The instrument was then pilot tested for its reading level and construct workability and to establish a scoring mechanism for the tool.

This instrument was created to measure patient compliance to the SHAPP hypertension therapeutic regimen. Scoring for compliance was as follows:

1. There was a total of 13 questions with numbered multiple choice answers.

2. The number answered for each question counted as the score for that question.

3. The scores for all 13 questions were totaled.

4. Scores could range from 13 (compliance) to 37 (noncompliance).

5. Scores of 13 to 25 were clients with compliant behavior, whereas scores of 26 to 37 were clients who exhibited noncompliant behavior.

<u>Instrument for Medical Chart Review</u>

The third and last tool used in this study was the Instrument for Medical Chart Review (see Appendix C). It was designed by the researcher as an appropriate instrument

for collecting demographic data from a retrospective medical chart review. Seven of the 10 questions were readily documented in the medical records. The other three questions, relating to current marital status, employment, and education, needed updating from the initial medical history, and therefore were extracted from the clients' interviews.

## Procedure for Data Collection

Clients who attended the SHAPP clinics and met the criteria for sample selection between November 1, 1990, and January 31, 1991, were asked to participate in the research study. All who were asked and agreed to be interviewed signed the consent form (see Appendix G). All three instruments were utilized during the interview. Upon completion of the interview, the client's medical chart was retrospectively reviewed from the initial admission date to the SHAPP through the date of the interview. Data were collected from the medical chart review regarding the client's compliance behavior and demographic information. The instruments for locus of control and compliance were then scored for each client.

## Analysis of Data

Data were analyzed using descriptive and inferential statistical measures. The SPSS/PC+ Studentware Program (Norusis, 1988) was used for the statistical analysis. The descriptive measures used in the study were: frequencies

and percentages with chi-square analyses. Inferential analyses were performed using the Pearson Product Moment Correlation Coefficient to evaluate relationships. This research study used the most powerful techniques available to look at the data, such as parametric statistics. Parametric techniques, such as Pearson's Correlation, were used with ordinal data. Munro, Visintainer, and Page (1986) supported this position and they documented their reasoning using Kerlinger's statement: "The best procedure is to treat ordinal measures as though they were interval measurements, but to be constantly alert to the possibility of gross inequality of intervals" (p. 7). The variables of sex, race, employment, and family history were also treated with parametric techniques because they were dichotomous "dummy" variables.

To permit statistical analysis, the investigator had to increase the variable variance by changing the cutting point to the median for the variables of compliance, age, education, hypertensive history, and the number of subdiagnoses. For the purpose of statistical analysis, the locus of control scores were adjusted toward internality rather than toward externality. The analysis is reported in narrative and graphic form and is discussed in Chapter IV.

## Summary

The activities that were involved in conducting the study were discussed in this chapter. The research design, methods, procedures, and statistical analysis used to test the two hypotheses were described. Statistical measures used in the data analysis from both client interviews and retrospective chart reviews were identified.

Chapter IV explores the findings of the research study. The analysis of the data is presented in narrative and graphic form.

## CHAPTER IV

## Data Analyses and Discussion

Chapter IV presents the findings and results of the statistical analyses of the research data. Descriptive statistics for the sample group are presented. Evaluation and discussion of the research hypotheses are provided. Also included are additional findings and strengths and limitations of the study.

### Description of Study Group

The total sample size was 101 and included 88.1% compliant clients and 11.9% noncompliant clients as shown in Figure 4. Internal controls were 56.4% of the sample, whereas 43.6% were external controls.

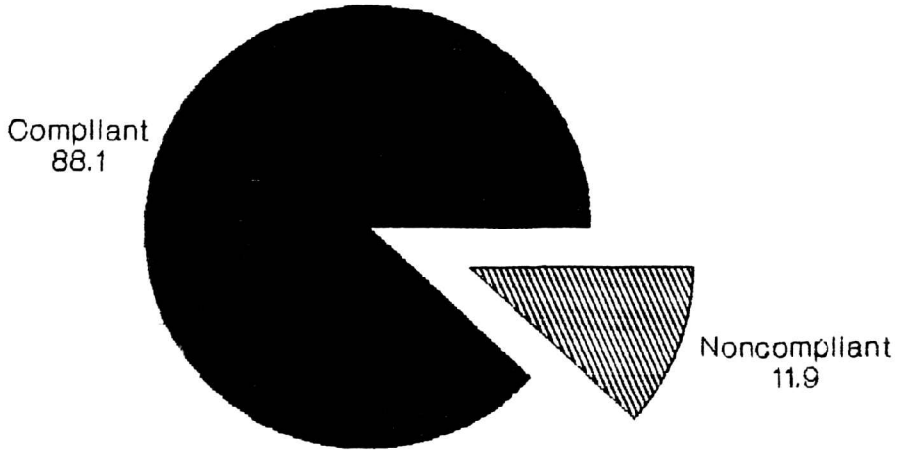



Figure 4. Compliance rate of the study group.

The demographic characteristics of the sample are presented in Table 1. The sample was composed of 80.2% black clients and 73.3% female clients. The median age was 53 years and the median education level was the 10th grade. The majority of the sample were married (47.5%) and not employed (57.4%).

Table 2 presents the medical characteristics of the sample. The sample consisted of clients with a positive family history of cardiovascular disease (92.1%) and with a median hypertension history of 13 years. Most of the participants had primary hypertension (95%) and at least one other medical diagnosis (33.7%), most often of which was obesity (48.5%).

The sample consisted of 80.2% black clients and 19.8% white clients. This distribution was consistent with Green (1988) who found that black Americans were twice as likely as whites to have moderate hypertension and three times as likely to have severe hypertension.

The sample was composed of 26.7% male clients and 73.3% female clients. These findings supported the report by Ames (1985) that males were less likely to receive treatment for hypertension as compared to females.

Table 1
Demographic Characteristics of Compliant and Noncompliant Clients and Total Sample

| Characteristics | % Compliant | % Noncompliant | Total sample N | Total sample Percent |
|---|---|---|---|---|
| Sex | | | | |
| Male | 88.9 | 11.1 | 27 | 26.7 |
| Female | 87.8 | 12.2 | 74 | 73.3 |
| Race | | | | |
| Black | 86.4 | 13.6 | 81 | 80.2 |
| White | 95.0 | 5.0 | 20 | 19.8 |
| Age group | | | | |
| 30-39 | 69.2 | 30.8 | 13 | 12.9 |
| 40-49 | 84.6 | 15.4 | 26 | 25.7 |
| 50-59 | 92.9 | 7.1 | 28 | 27.7 |
| 60-69 | 95.8 | 4.2 | 24 | 23.8 |
| 70 and over | 90.0 | 10.0 | 10 | 9.9 |
| Marital status | | | | |
| Never married | 69.2 | 30.8 | 13 | 12.9 |
| Married | 89.6 | 10.4 | 48 | 47.5 |
| Separated/divorced | 96.0 | 4.0 | 25 | 24.8 |
| Widowed | 86.7 | 13.3 | 15 | 14.9 |
| Employment | | | | |
| Employed | 83.7 | 16.3 | 43 | 42.6 |
| Not employed | 91.4 | 8.6 | 58 | 57.4 |
| Education | | | | |
| None | 50.0 | 50.0 | 2 | 2.0 |
| K-6th grades | 84.2 | 15.8 | 19 | 18.8 |
| 7-11th grades | 88.2 | 11.8 | 51 | 50.5 |
| High school grad | 94.7 | 5.3 | 19 | 18.8 |
| Partial technical | 100.0 | 0 | 5 | 5.0 |
| Partial college | 80.0 | 20.0 | 5 | 5.0 |

Table 2
Medical Characteristics of Compliant and Noncompliant Clients and Total Sample

| Characteristics | % Compliant | % Noncompliant | Total sample N | Total sample Percent |
|---|---|---|---|---|
| Family history of CVD | | | | |
| Yes | 91.4 | 8.6 | 93 | 92.1 |
| No | 50.0 | 50.0 | 8 | 7.9 |
| Hypertension history | | | | |
| 0-5 years | 100.0 | 0 | 13 | 12.9 |
| 6-10 years | 88.0 | 12.0 | 25 | 24.8 |
| 11-15 years | 86.2 | 13.8 | 29 | 28.7 |
| 16-20 years | 90.9 | 9.1 | 11 | 10.9 |
| 21-25 years | 83.3 | 16.7 | 6 | 5.9 |
| 26 years & over | 82.4 | 17.6 | 17 | 16.8 |
| Hypertension diagnosis | | | | |
| Primary | 87.5 | 12.5 | 96 | 95.0 |
| Secondary | 100.0 | 0 | 5 | 5.0 |
| No. of subdiagnoses[a] | | | | |
| 0 | 95.2 | 4.8 | 21 | 20.8 |
| 1 | 79.4 | 20.6 | 34 | 33.7 |
| 2 | 89.7 | 10.3 | 29 | 28.7 |
| 3 | 92.3 | 7.7 | 13 | 12.9 |
| 4 | 100.0 | 0 | 3 | 3.0 |
| 5 or more | 100.0 | 0 | 1 | 1.0 |

[a]Number of other medical diagnoses the client had in addition to hypertension.

## Research Hypotheses

**Research Hypothesis 1: More than 50% of the clients attending the nurse-practitioner-managed SHAPP clinics will demonstrate compliance with their prescribed hypertension regimen.**

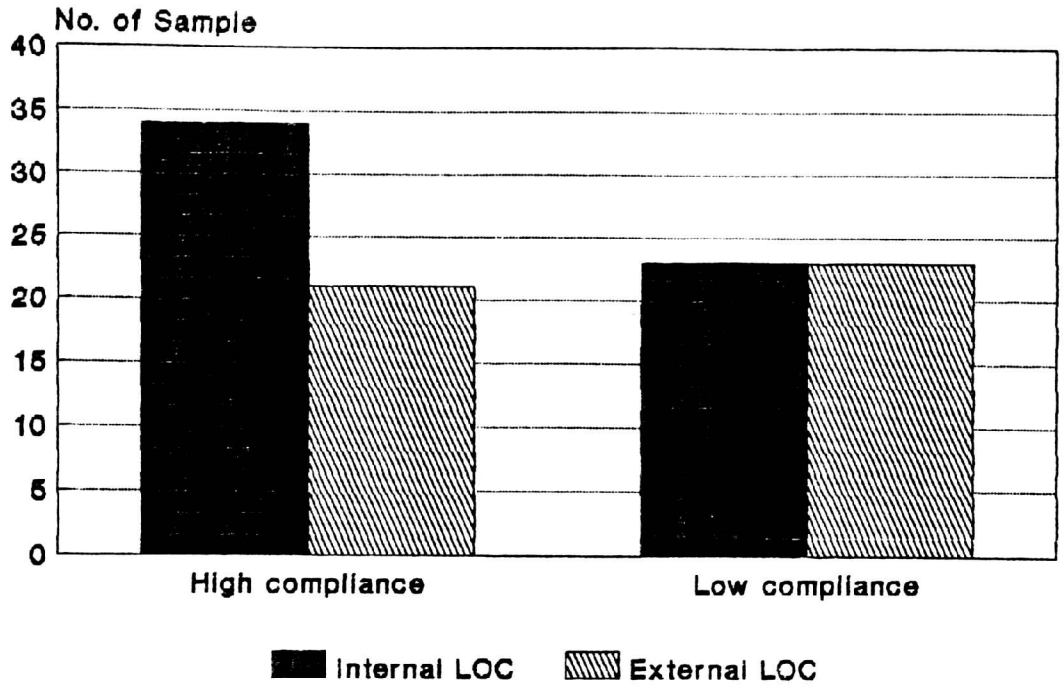
The Lifestyle Questionnaire of Hypertension Risk Factors was used to collect the data for this research. The findings revealed that of the total 101 participants studied, 89 clients, or 88.1%, were compliant with their

prescribed hypertension regimen, whereas 12, or 11.9%, were noncompliant (see Figure 4). Therefore, the research hypothesis is supported by these data.

**Research Hypothesis 2: Hypertensive clients cared for in nurse-practitioner-managed SHAPP clinics exhibiting internal locus of control will be more compliant in following a prescribed hypertension regimen than hypertensive clients exhibiting external locus of control.**

Low internality is defined as external locus of control (with an ANSIE score of 1 through 9) and high internality is considered as internal locus of control (with an ANSIE score of 10 through 19). Originally, compliance was defined as a score of 25 or less on the Lifestyle Questionnnaire for Hypertension Risk Factors instrument. These research data indicated no relationship between locus of control and compliance ($r = -.03$, $p = .37$) as compliance was originally defined. To permit statistical analysis, the investigator had to increase the variable variance by changing the cutting point to the median for compliance, which is at a score of 22. Using this redefinition of compliance, a slight (but not statistically significant) relationship was demonstrated for locus of control and compliance ($r =-.12$, $p = 12$). Figure 5 illustrates the relationship between compliance and locus of control. Although these data indicated that more of the high compliant clients had an

internal locus of control, the correlation was not statistically significant enough to support this hypothesis.




N = 101, chi-square = 1.42, D.F. = 1, p = .23.

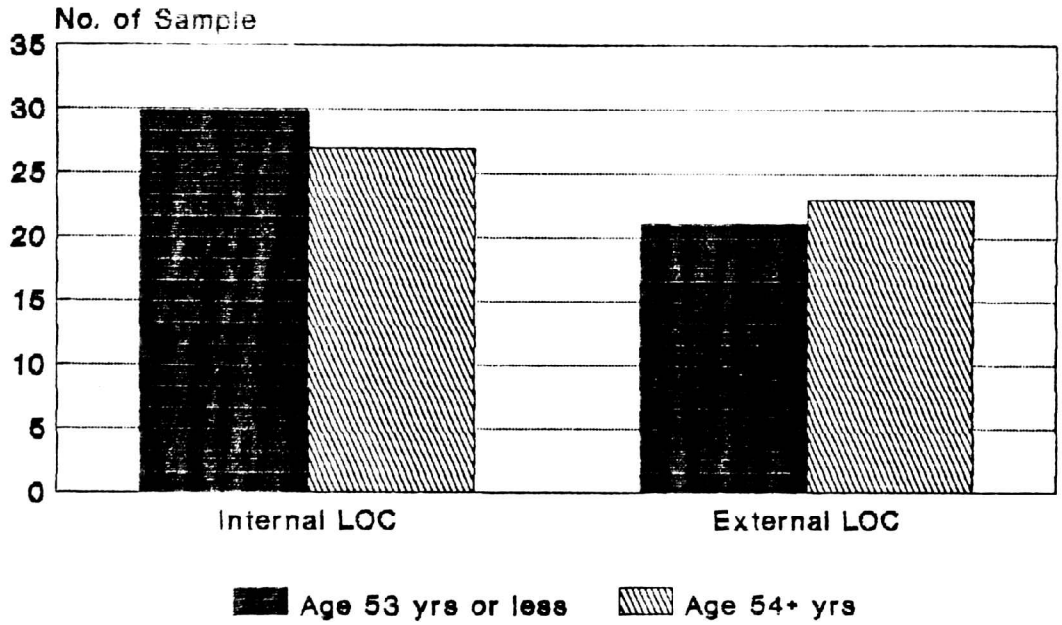
Pearson's R = -.12, p = .12.

Figure 5. The relationship of compliance and locus of control.

## Additional Findings

Although hypertension clients from ages 18 years and older are eligible to enroll in the SHAPP clinics, the youngest client in the sample was 30 years of age. The median age was 53 years. Age was not significantly correlated with compliance at r = -.14 (p = .08), but age was negatively correlated with internal locus of control at

r = -.20 (p = .02). Older clients exhibited external locus of control, whereas younger clients exhibited internal control. The relationship between locus of control and age is demonstrated in Figure 6 using the median age of 53 years as the cutting point for statistical analysis.



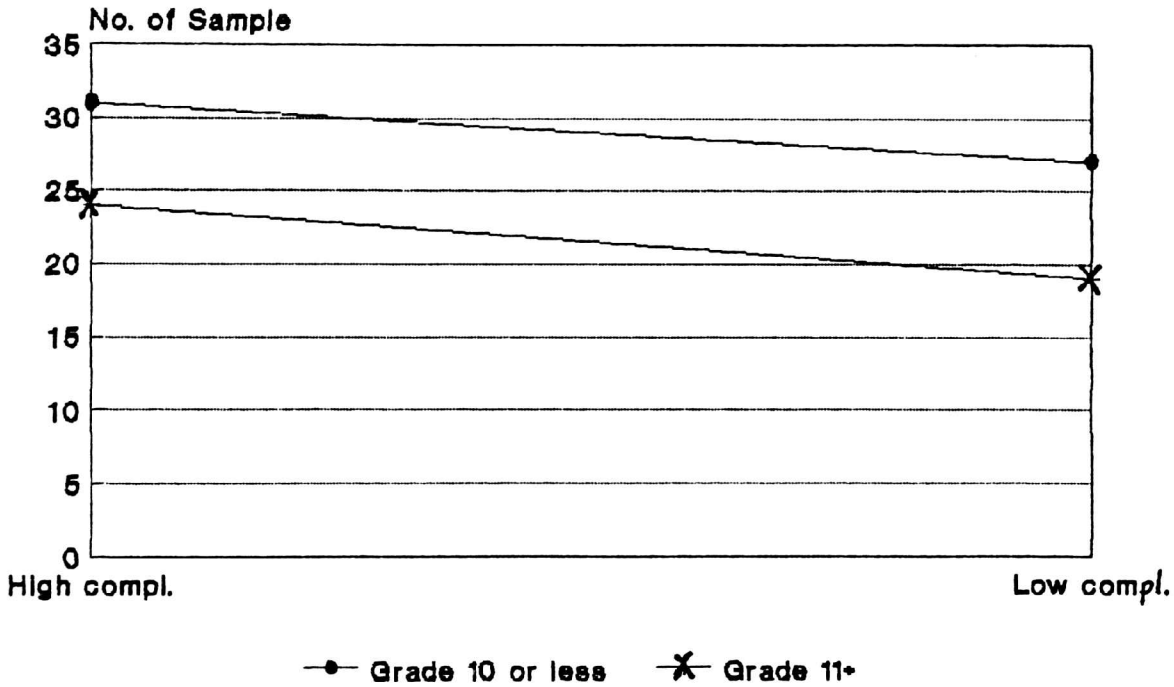

N = 101, chi-square = .24, D.F. = 1, p = .63.

Pearson's R = -.05, p = .31.

Figure 6. The relationship of locus of control and age.

The sample was composed of 26.7% male clients and 73.3% female clients. These data demonstrated no correlation between compliance and sex (r = .06, p = .29) or between locus of control and sex (r = -.01, p = .46).

Compliance was not correlated with education at $r = -.07$ ($p = .23$). The median of 10 years or less of education was used as the cutting point for statistical analysis as depicted in Figure 7. These results were consistent with the findings of Sackett et al. (1978) that failed to support a correlation between patient education, knowledge about hypertension, and compliance.



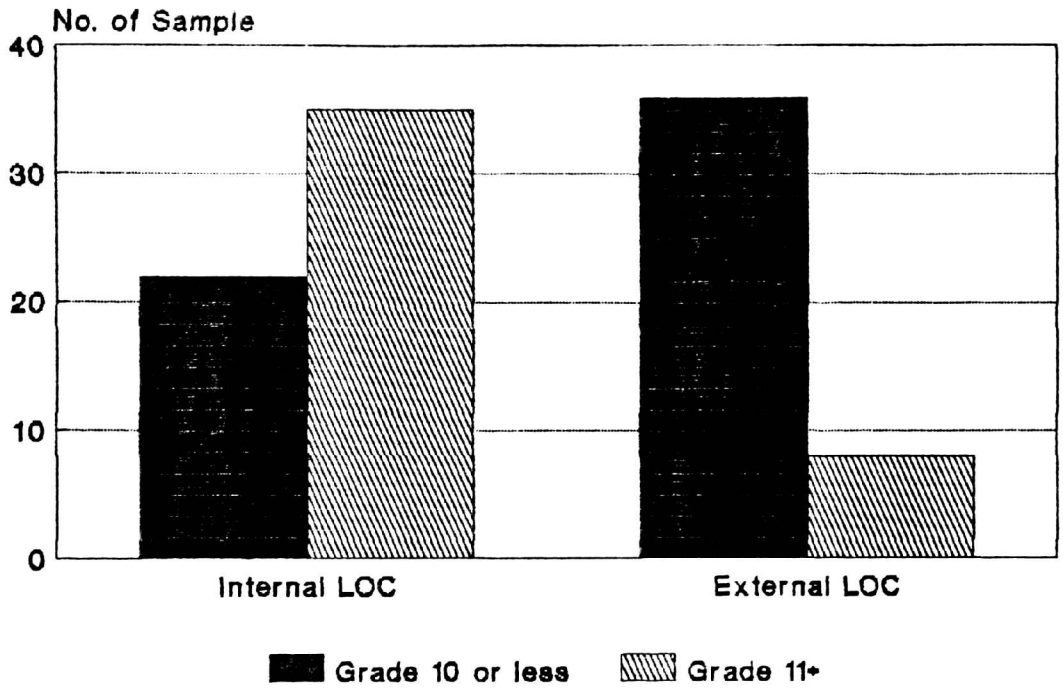

N = 101, chi-square = .06, D.F. = 1, p = .81.

Pearson's R = -.02, p = .41.

Figure 7. The relationship of compliance and education.

Education and internality were positively correlated at $r = .55$ ($p = .00$). The more education one had, the greater the degree of internal locus of control. Figure 8

illustrates the relationship between locus of control and education using the median number of years of education as the cutting point for statistical analysis.



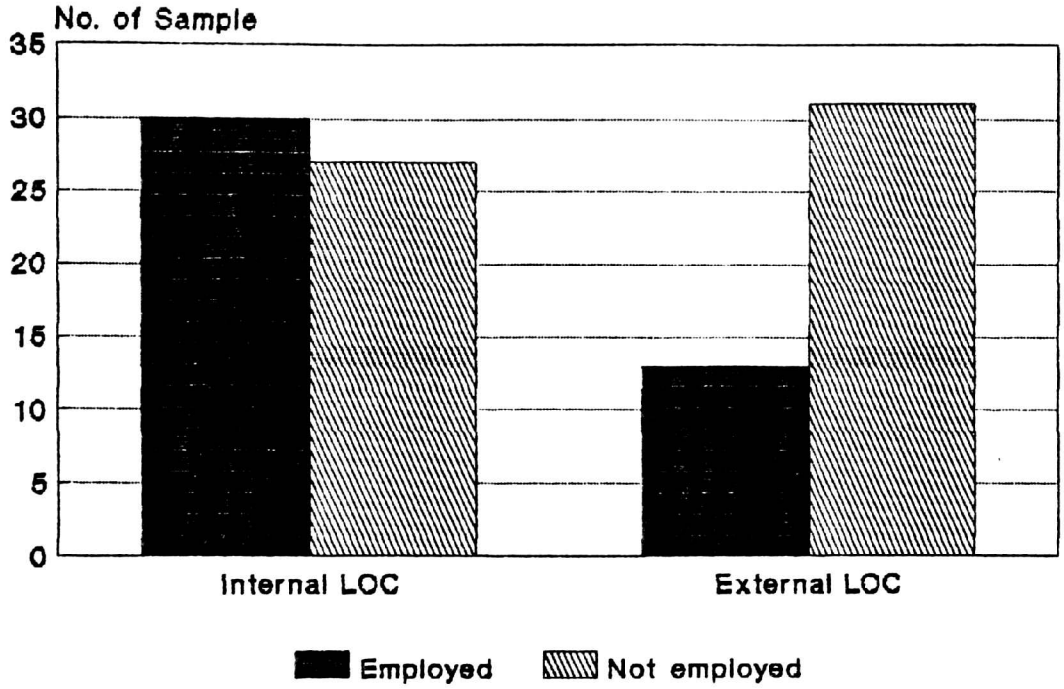

N = 101, chi-square = 18.97, D.F. = 1, p = .00.

Pearson's R = .43, p = .00.

Figure 8. The relationship of locus of control and education.

Part-time or full-time employment of the sample was 42.6%. No correlation existed between compliance and employment (r = -.01, p = .45). Employment was significantly correlated with locus of control at r = -.26 (p = .00) (see Figure 9). Those clients who were employed

were higher in internality, whereas those unemployed were lower in internality.




N = 101, chi-square = 5.41, D.F. = 1, p = .02.

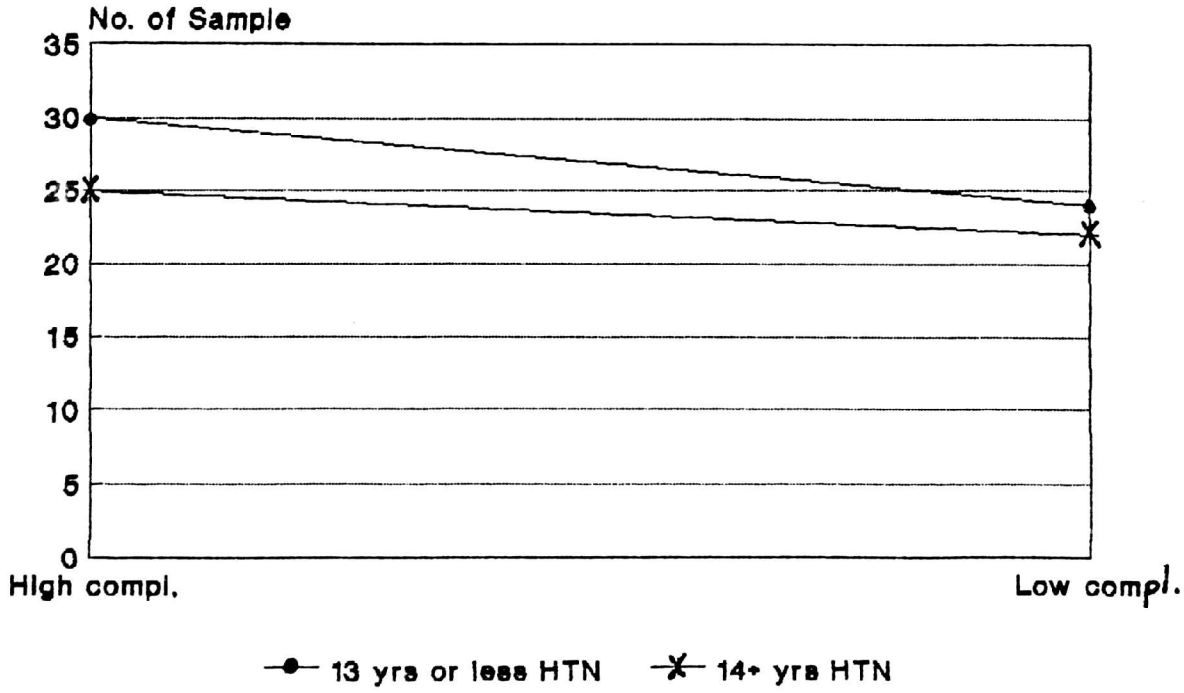
Pearson's R = -.23, p = .01.

Figure 9. The relationship of locus of control and employment.

The majority of the sample had a positive family history of cardiovascular disease (92.1%). Family history was significantly correlated with compliance at r = .27 (p = .00), but was not significantly correlated with locus of control at r = -.04 (p = .35). The clients with positive family history of cardiovascular disease had high

compliance, whereas those with negative family history had low compliance.

There was no demonstrated correlation between hypertensive history and compliance (r = .07, p = .25). These results concurred with the findings of Marston (1970) which indicated that health care compliance decreased over time. For statistical analysis, the median of 13 years of hypertension was used as the cutting point. The relationship of compliance and hypertensive history is shown in Figure 10. The correlation between locus of control and




N = 101, chi-square = .06, D.F. = 1, p = .81.

Pearson's R = .02, p = .41.

Figure 10. The relationship of compliance and hypertensive history.

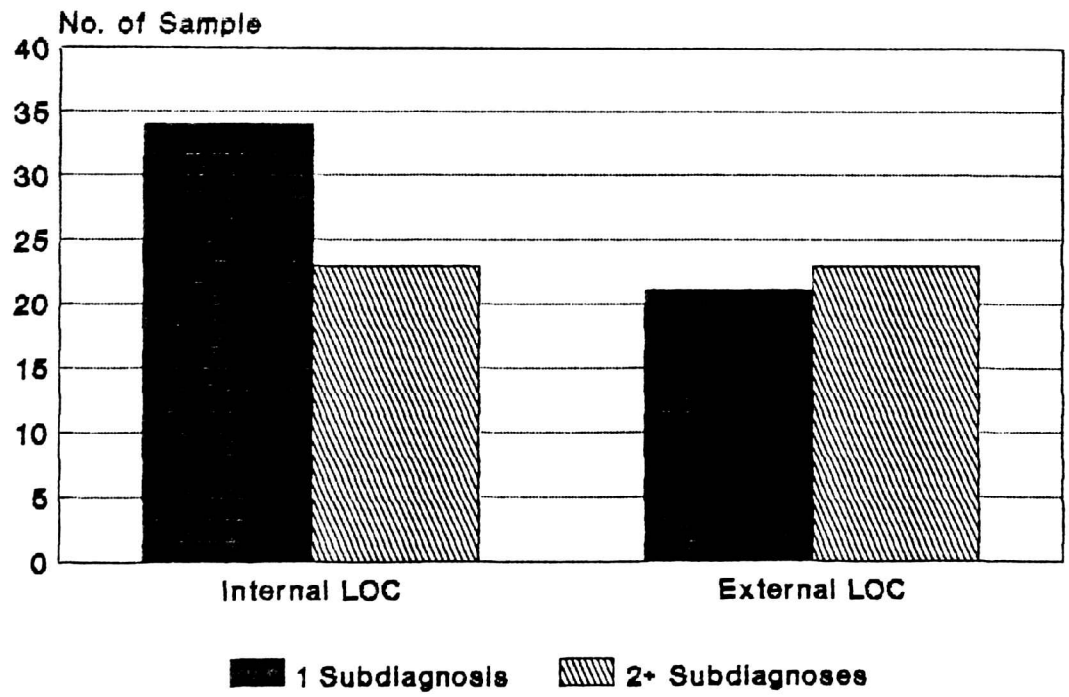
hypertensive history reached significance at $r = -.17$ ($p = .04$). As the number of years of hypertension increased (degree of chronicity), internality decreased.

Primary (essential) hypertension dominated among the sample at 95%. The remainder of the sample was diagnosed with hypertension secondary to renal disease.

Over 75% of the sample had from one to three other medical diagnoses in addition to their diagnosis of hypertension. The six most common subdiagnoses were: obesity (48.5%), cardiovascular disease (41.6%), hypercholesterolemia (14.9%), diabetes mellitus (9.9%), renal disease or kidney stones (5%), and alcohol abuse (5%) (nonexclusive categories do not add to 100%). A slight (but not statistically significant) relationship was demonstrated for compliance and subdiagnoses ($r = .10$, $p = .16$). There was significant correlation between the number of subdiagnoses and locus of control with $r = -.26$ ($p = .01$). As the client's number of subdiagnoses increased, internality decreased. The median of one subdiagnosis was used as the cutting point for statistical analysis. The relationship of locus of control and subdiagnoses is represented in Figure 11.

Compliance rate of clients' appointment keeping was highest within the county in which the investigator was stationed (89.4%) as opposed to the counties managed by the other nurse practitioners (NPs). One likely reason was the

fact that prior to this county's SHAPP clinic days, the investigator generally telephoned the clients to remind them of their appointments, whereas other county NPs mailed reminder notes. Since this study, the clinical nurse specialist, who is the coordinator of the program, has begun contacting most of the SHAPP clients in the East Central Health District by phone to remind them of their appointments. The overall rate of appointment failures for all of the SHAPP clinics in the ECHD during this research time period was approximately 26%.




N = 101, chi-square = 1.42, D.F. = 1, p = .23.

Pearson's R = -.12, p = .12.

Figure 11. The relationship of locus of control and subdiagnoses.

The majority of the clients who participated in this study were from the county in which the investigator was employed (30.7%). (See Figure 3.) One possible reason may have been related to the high rate of appointment keeping by the clients in that county.

## Strengths of the Study

Several factors added strength to the study: hypertension data were obtained over time through the medical chart reviews, a well-tested instrument for locus of control was utilized, and client interviews were conducted by one investigator for consistency of data collection.

From this analysis, it was evident that the compliance instrument, the Lifestyle Questionnaire of Hypertension Risk Factors, discriminated well between the individuals in this study. The majority of the participants scored high in compliance as determined by the cut point originally defined, indicating that most of the clients displayed compliant behavior, as measured by this tool. Thus, the sensitivity of the Lifestyle Questionnaire was adequate.

## Limitations of the Study

Some aspects of the research study's methodology may have influenced the results. One such limitation was the cut point designation. An analysis of the responses to the Lifestyle Questionnaire of Hypertension Risk Factors (compliance instrument) indicated a large number of compliers with the original cut point for compliance at a

score of 25 and below. The number of compliers would have been 54.5% instead of 88.1% had the cut point been at the median, or at a score of 22 and below.

The compliance instrument utilized was developed by the investigator and it was pilot tested once on a sample of 50 clients. The reliability and validity of the instrument have not been sufficiently tested.

In addition, the research design and the setting of the investigation may have influenced the study's findings. Data collection on compliance were obtained through client interviews. This interview format may have affected the clients' responses to the Lifestyle Questionnaire because the clients were aware that the investigator was evaluating their compliance to the hypertension regimen and they may have responded as they felt the investigator would like them to respond (Hawthorne effect). Interaction of the clients with the investigator, who is their health care provider, may have influenced the results.

Finally, the findings might also have been affected by the sample utilized in this study. The sample was relatively small in size. There was a predominance of black females, as is common in the rural south, which made the findings questionable in generalizing to other population groups. A heavy reliance on self-report data by the clients may have skewed the results. All participants who were interviewed had kept their clinic appointments during the

research time period, or they were not included in the sample. Therefore, some degree of compliance was exhibited by the sample. The possibility that many clients who may have been classified as noncompliant did not keep their scheduled clinic appointments during the research time period may have affected the findings.

## Summary

The research findings supported the hypothesis that more than 50% of the clients attending the nurse-practitioner-managed SHAPP clinics will demonstrate compliance with their prescribed hypertension regimen. Although the study findings indicated a slight correlation between compliance and locus of control, these data did not significantly support the hypothesis that hypertensive clients cared for in nurse-practitioner-managed SHAPP clinics exhibiting internal locus of control will be more compliant in following a prescribed hypertension regimen than hypertensive clients exhibiting external locus of control.

Chapter V will present conclusions within the limitations of the study. Implications for interventions in nurse-practitioner-managed hypertension clinics will be discussed. Recommendations for future research projects in nursing management for hypertensive clients will be addressed.

# CHAPTER V

## Conclusions, Implications, and Recommendations

Chapter V presents conclusions within the limitations of the study. Implications for interventions in nurse-practitioner-managed hypertension clinics are discussed. Recommendations for future research projects in nursing management for hypertensive clients are addressed.

### Conclusions

The research findings revealed that 88.1% of the sample were compliant with their prescribed therapy. These data supported the hypothesis that more than 50% of the clients attending the nurse-practitioner-managed SHAPP clinics will demonstrate compliance with their prescribed hypertension regimen.

The research data indicated no relationship between locus of control and compliance ($r = -.03$, $p = .37$) as compliance was originally defined (score of 25 or less on the compliance instrument). To permit statistical analysis, the variable variance had to be increased by changing the cutting point to the median for compliance (score of 22 or less). Using this redefinition of compliance, a slight (but not statistically significant) relationship was demonstrated for compliance and locus of control ($r =-.12$, $p = 12$). As

internality increased, compliance increased. Although the study findings indicated a slight correlation between locus of control and compliance, these data did not significantly support the hypothesis that hypertensive clients cared for in nurse-practitioner-managed SHAPP clinics exhibiting internal locus of control will be more compliant in following a prescribed hypertension regimen than hypertensive clients exhibiting external locus of control.

The findings indicated that there were no correlations between compliance and each of the variables of age, sex, education, employment, hypertensive history, and the number of subdiagnoses. However, there was a significant correlation between compliance and family history ($r = .27$, $p = .00$; using Pearson's r). Those clients with positive family history for cardiovascular disease had higher compliance than those clients with negative family history.

These data did not demonstrate any relationship between locus of control and each of the variables of sex and family history. Locus of control had a negative correlation with age at $r = -.20$ ($p = .02$). Older clients exhibited externality, whereas younger clients displayed internality. There was a significant correlation between locus of control and education ($r = .55$, $p = .00$). As education level increased, internality increased. Locus of control correlated significantly with employment at $r = -.26$ ($p = .00$). Those clients who were employed demonstrated

internality, whereas those who were unemployed displayed externality. There was a slight correlation between locus of control and hypertensive history ($r = -.17$, $p = .04$). As the number of hypertensive years increased, internality decreased. A negative correlation existed between locus of control and the number of subdiagnoses with $r = -.26$ ($p = .01$). As the client's number of other medical diagnoses, in addition to hypertension, increased, internality decreased.

## Implications

The ultimate goal of any hypertension control program is the reduction of excessive morbidity and mortality from cardiovascular disease, although this is often difficult to evaluate over a short period of time. To be effective, hypertension programs must address the needs of the whole individual. Given, Given, and Coyle (1984) cited the most frequently used intervention strategies for behavioral change that included: self-help, education, and social support groups. It has been shown that tailoring these strategies to particular groups of clients is not as effective as individualizing client interventions. Tailoring the program to the individual needs of each client is an essential factor for long-term compliance behavior changes. Nurse practitioners must provide individualized nursing care to effect changes in lifestyle behaviors that will influence positive health outcomes for the client.

Achieving and maintaining the active participation of clients in the management of their hypertension presents a considerable challenge to nurse practitioners. Improving clients' participation in the care of hypertension can have significant rewards for clients and the health care system. For the clients, active participation can reduce symptoms of the disease and the side effects of medications, lower the risk of morbidity and end organ damage, and increase the quality of life. The health care system benefits from active participation through lower utilization, reduced costs, and improved services to those who need more direct therapeutic care (Given, Given, & Coyle, 1984). For the nurse practitioner as the health care provider, internal rewards are often received, such as job satisfaction, increased self-esteem and self-worth, and role fulfillment in knowing that he or she is helping to improve the client's health disposition and for being instrumental in promoting the health status of today's society.

Intervention strategies to improve compliance behavior should focus on active participation of clients in lifestyle changes. Often these changes are fairly major ones which clients may employ successfully on an initial basis, but many clients lose incentive and gradually return to their old habits over a long-term period. The focus of hypertensive therapeutic regimens should be behavior changes that are likely to influence health outcomes through

self-help interventions. For example, for the obese hypertensive client, the nurse practitioner should develop a program in which the client will be able to reach an attainable goal of one pound weight loss a week. Another example of self-help intervention is to plan a smoking cessation program of one less cigarette a week for the chronic hypertensive smoker.

The education provided for clients in the hypertension program must be easily understood in order to promote compliance behaviors. Nurse practitioners must tailor the educational counseling according to the needs of the individual client. Clients with higher levels of education did not show a correlation with compliance indicating that higher education did not assure compliance behavior. Also, clients with longer hypertensive history did not show a relationship with compliance indicating that chronic hypertension did not assure compliance behavior. For these clients, it may be necessary to determine the reasons for noncompliance and to gradually aim toward overcoming those obstacles, such as to exercise regularly, to decrease sodium and/or cholesterol in the diet, or to reduce weight. In addition, chronic hypertensives should be given constant reassurance that continuous monitoring by nurse practitioners and taking medication daily are important aspects of maintenance therapy in order to regulate and control their hypertension.

The reliance on social support groups by hypertensive clients is another intervention strategy essential for behavioral change. Nurse practitioners should stress the importance of including family members in the consideration and planning for the therapeutic regimens. Family and social support groups influence compliance by providing emotional and positive support for the client. They are a source of strength and encouragement to the client and may be instrumental in improving compliance by actively participating with the client in lifestyle changes, such as a diet low in sodium and cholesterol. In addition, the nurse practitioner can also be a source of social support for the client as mutual trust and understanding develop. Therefore, consistent, well thought-out educational interventions involving the support of significant others should be incorporated into each hypertension regimen for both clients and nurse practitioners to pursue.

The issue of health care provider-client communication may also be significant in the success of high blood pressure control programs. Compliance with a hypertension control treatment program involves both continuing nurse practitioner-client interaction and the client's willingness and ability to follow his or her personal regimen at home. Caring and concern for the clients as communicated by the nurse practitioner impacts the clients' willingness to comply with the prescribed hypertension regimen. Discussing

noncompliance with the client is frequently not easy. A nonconfrontational, nonaccusatory approach with the goal of finding the reason for noncompliance provides for an effective client-provider interaction. It may be necessary to review the reasons for noncompliance with the client to allow the individual the opportunity to acknowledge these reasons.

Although the research findings did not support the relationship between locus of control and compliance, it may be beneficial for the nurse practitioner to tailor the hypertension regimen according to the client's locus of control beliefs which may influence compliance behavior. Nurse practitioners should encourage the client with internal beliefs toward a program that (a) provides choice of treatment, (b) involves the client in making decisions, and (c) emphasizes individual responsibility (Shillinger, 1983). On the other hand, an externally-oriented client would respond better in a program that is designed to (a) help the individual toward a belief that his or her health outcome can be controlled, (b) rely on social support systems, and (c) improve the client's self-confidence, decision-making skills, and motivation.

Behaviorally-oriented strategies can improve low compliance and bring previously uncontrolled hypertensives to desired blood pressure range (Sackett et al., 1978). Nurse practitioners can translate research findings into

practical tools for intervention for the primary care provider to improve low compliance. The following can be viewed as compliance-improving strategies in the management of hypertension:

1. Focus on clients who remain uncontrolled. Counsel clients regarding present health status.

2. Set a therapeutic goal that is attainable.

3. Be sure that the current drug regimen prescribed is strong enough to work adequately.

4. Ask the client whether he is taking his blood pressure pills.

5. Count the pills.

6. Measure blood levels.

7. Remove barriers to compliance, such as shortening the clinic waiting time period, scheduling the client with the same nurse practitioner for each visit, and simplifying the regimen.

8. Practice specific maneuvers, such as contacting clients, by mail or by phone, who have failed to keep their appointments, providing less frequent appointments for the compliant client, and using feedback and reinforcement.

The asymptomatic hypertensive patient often requires various forms of positive reinforcement if he or she is to continue complying to a lifelong drug regimen (D'Epiro, 1986). For the noncomplier, scheduling more frequent clinic visits allows the nurse practitioner to reiterate concern

about the risks of uncontrolled hypertension. Teaching the client to perform home monitoring can eventually reduce the need for frequent clinic visits and help the client to assume a more active role in maintaining normotension.

Health care providers tend to practice those behaviors which they believe will improve client compliance (Kolton & Piccolo, 1988). With increased awareness of the compliance theories, such as locus of control beliefs, and the variety of interventions that are available to increase compliance, health care providers can begin to incorporate additional interventions into their daily clinical practices. This use of additional interventions can be effective in promoting compliance when the client and nurse practitioner plan a regimen that takes into consideration the client's beliefs, clinical condition and any barriers to compliance. Nurse practitioners should therefore be encouraged to consider all of the behaviors supported in the compliance literature when designing a treatment regimen that is individualized to the client's self-care needs.

Because many of the factors associated with compliance fall within the realm of nursing, nurse practitioners can have a significant impact on increasing compliance behavior in hypertensive patients. The phenomenon of noncompliance occurs among hypertensive clients of various demographic types. Nurse practitioners must develop an awareness of the magnitude of this health problem and its subsequent effects

on client care. Nurse practitioners must continue to recognize the importance of documenting and sharing their experiences and successes in creating effective patient education programs which promote compliance (Plawecki & Mallory, 1987). With a thorough understanding and concern about risk factors and behavior modification, intervention strategies in nurse-practitioner-managed hypertension clinics to improve compliance may be used to combat the increasing U.S. and Georgia hypertension mortality and morbidity rates and enhance the quality of life.

## Recommendations

Locus of control is not a conclusive predictor of compliance behavior, but it can lend valuable insight into the decisions regarding the most effective nursing approach with clients displaying various health behaviors (Shillinger, 1983). Using this construct, nursing care plans can more effectively correspond to the locus orientation of clients. Internality reinforcement can result from nursing interventions and client successes.

Further research is recommended to identify psychosocial and/or behavioral factors which may distinguish between compliant and noncompliant hypertensive clients (Cronin, 1986). In addition, more reliable and discriminating instruments should be developed to measure the health beliefs of hypertensive clients. Furthermore, prospective studies should be conducted in various locations

to determine whether health beliefs differ from one health care setting to another or from one community to another.

Future replications of this study should be conducted with more heterogeneous samples. Also, attempts should be made to contact clients who do not keep their scheduled appointments. Reasons for clients' noncompliance should be investigated.

Assessment of health beliefs that assist in the choice of intervention in health teaching regarding medication, diet, exercise, and other self-care practices related to hypertension should be researched. Although locus of control theory may have contributed to the understanding of health behavior, further clarification of the precise meanings of the construct and its relationship to behavior is needed through research. By understanding the locus of control construct, nurse practitioners might develop an awareness of the potential influence of health beliefs on compliance behavior when assessing learning needs, teaching, and counseling of hypertensive clients. Further research is needed in definitive interventions for improving compliance behavior as knowledge of locus of control concepts is expanded and the tools are refined.

Research questions that have impact on the nursing care of hypertensive clients should be addressed. Valid and reliable health belief instruments that can be useful as nursing assessment tools must be developed and tested. The

relationship between locus of control construct and intervention strategies designed to meet the needs of noncompliant hypertensive clients should be further explored. The relationship between locus of control construct and cultural aspects affecting compliance behavior among hypertensive clients needs to be investigated. The effects of social support systems on health beliefs and compliance need to be studied. Finally, using qualitative research methods to study beliefs and attitudes of individuals with hypertension should be addressed.

## Summary

Conclusions within the limitations of this research study were discussed and generalized. Implications for interventions in nurse-practitioner-managed hypertension clinics were considered. Recommendations for future research in the nursing care of hypertensive clients were presented as a means to improve compliance behaviors and health care outcomes of nurse-practitioner-managed hypertensive clients.

# APPENDIX A

# ADULT NOWICKI-STRICKLAND INTERNAL-EXTERNAL LOCUS OF CONTROL QUESTIONNAIRE (ANSIE)*

Directions: Please answer the following questions by checking the word yes or no. The answer you choose is describing your true personal feelings. There are no right or wrong answers. This is voluntary and confidential. Your participation is greatly appreciated.

| Item | Yes | No |
|---|---|---|
| 1. Are some people just born lucky? | ____ | ____ |
| 2. Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway? | ____ | ____ |
| 3. Do you feel that most of the time parents listen to what their children have to say? | ____ | ____ |
| 4. Do you believe that wishing can make good things happen? | ____ | ____ |
| 5. Did you feel that it's nearly impossible to change your parent's mind about anything? | ____ | ____ |
| 6. Do you feel that when you do something wrong there's very little you can do to make it right? | ____ | ____ |
| 7. Do you believe that most people are just born good at sports? | ____ | ____ |
| 8. Are most of the other people your age stronger than you are? | ____ | ____ |
| 9. Do you feel that one of the best ways to handle most problems is just not to think about them? | ____ | ____ |
| 10. Do you feel that when a person your age decides to hit you there's little you can do to stop him or her? | ____ | ____ |
| 11. Have you felt that when people were angry with you it was usually for no reason at all? | ____ | ____ |

| Item | Yes | No |
|---|---|---|
| 12. Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them? | ____ | ____ |
| 13. Most of the time do you find it useless to try to get your own way at home? | ____ | ____ |
| 14. Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters? | ____ | ____ |
| 15. Do you usually feel that you have little to say about what you get to eat at home? | ____ | ____ |
| 16. Do you feel that when someone doesn't like you there's little you can do about it? | ____ | ____ |
| 17. Did you usually feel that it was almost useless to try in school because most other children were just plain smarter than you are? | ____ | ____ |
| 18. Are you the kind of person who believes that planning ahead makes things turn out better? | ____ | ____ |
| 19. Most of the time, do you feel that you have little to say about what your family decides to do? | ____ | ____ |

*Permission to use instrument granted by Dr. Stephen Nowicki, Emory University, Department of Psychology, Atlanta, Georgia, 1990.

# APPENDIX B

## LIFESTYLE QUESTIONNAIRE OF HYPERTENSION RISK FACTORS

Directions: Please answer the following questions by placing a check (✓) in front of the answer that best applies to you. It is very important that you answer honestly. There are no right or wrong answers. This is voluntary and confidential. Your participation is greatly appreciated.

20. Which of the following best describes your use of salt?
    _____1. I do not add salt to my food or in cooking.
    _____2. I add salt to a few foods.
    _____3. I usually add salt to my food.

21. What type of milk do you use?
    _____1. No milk
    _____2. Skim milk, 1%, or 2% milk
    _____3. Whole milk

22. What is the average number of eggs that you eat in 1 week?
    _____1. None
    _____2. 3 eggs or less a week
    _____3. More than 3 eggs a week

23. How many times do you eat red meat in 1 week?
    _____1. None
    _____2. 4 meals or less a week
    _____3. More than 4 meals a week

24. What is the average number of meals with bacon, ham, or lunch meat that you eat in 1 week?
    _____1. None
    _____2. 3 meals or less a week
    _____3. More than 3 meals a week

25. What is the average number of times per week that you exercise for 20 or more continuous minutes?
    _____1. I exercise three or more times a week.
    _____2. I exercise one or two times a week.
    _____3. I do not exercise at all during the week.

26. Which one of the following do you usually do when you feel anxious or under stress?
    _____1. I do some type of relaxation technique (rest, talk it over with someone, calm down, exercise, etc.)
    _____2. I become angry and show my anger by hollering or raising my voice.
    _____3. I keep it inside, or I drink or take drugs.

27. How much alcohol do you drink in 1 week? (or equivalent)
    _____1. None
    _____2. 1 can of beer or 1 oz. of whiskey a week
    _____3. More than 1 can of beer or 1 oz. of whiskey a week

28. How much tobacco do you smoke per day?
    _____1. I do not smoke.
    _____2. I smoke 10 cigarettes or less a day.
    _____3. I smoke more than 10 cigarettes a day.

29. How often were appointments kept within the last year?*
    _____1. Kept appointments
    _____2. Missed 1-2 appointments a year
    _____3. Missed 3 or more appointments a year

30. Within the last year, blood pressure was:*
    _____1. Controlled
    _____2. Uncontrolled

31. Today's weight is:*
    _____1. Same weight or lost weight since admission to clinic
    _____2. Gained weight since admission to clinic

32. Within the last year, medication was taken:*
    _____1. On no medication
    _____2. Daily
    _____3. Not daily

*The answers to questions 29-32 were extracted from each individual client's medical chart review rather than from client interview.

# APPENDIX C

# INSTRUMENT FOR MEDICAL CHART REVIEW
## (Demographic Data)

33. What is client's age? _____years

34. What is client's race?
    _____1. Black
    _____2. White
    _____3. Other

35. What is client's sex?
    _____1. Male
    _____2. Female

36. What is client's current marital status?*
    _____1. Never married
    _____2. Married
    _____3. Separated/divorced
    _____4. Widowed

37. Is client currently employed?*
    _____1. Yes
    _____2. No

38. What grade did client finish in school? _____*

39. Does client have a family history of cardiovascular disease?
    _____1. Yes
    _____2. No

40. How many years has client had history of hypertension?
    _____years

41. What is client's hypertension diagnosis?
    _____1. Primary (Essential)
    _____2. Secondary

42. How many subdiagnoses does client have? _____
    List them: 1._____ 2._____
    3._____ 4._____
    5._____ 6._____

*The answers to questions 36-38 were extracted from client interview rather than from client's medical chart review.

# APPENDIX D

COPY OF PERMISSION LETTER

504 Park Drive
Waynesboro, Georgia 30830
September 23, 1990

Ms. Linda Johnson
Director of Nursing
East Central Health District
Richmond County Health Department
1001 Bailie Drive (10)
Augusta, Georgia 30910

Dear Ms. Johnson:

Over the last 3 years that I have worked with the Stroke and Heart Attack Prevention Program (SHAPP) at Burke County Health Department, I have developed a great interest and concern for the clients that I have cared for. I have seen a need for the clients to receive individualized health teaching, to emphasize areas of improvement in their lifestyle, and to form a trusting relationship with them while helping to control their high blood pressure problem.

As you may know, I am now working on a Master of Science Degree in Community Nursing. As my thesis, I have chosen to do a research study of the relationship between locus of control and compliance of the SHAPP clients seen in District 6. This study will help the SHAPP clinic to determine how well the clients are responding to the treatment regimen. It will also help to determine ways in which to increase the clients' compliance to the treatment program.

I would like to conduct this research study during the months of October, November, and December of this year. I would like to ask for the SHAPP clients within the counties of District 6 to volunteer to participate in this study. All SHAPP clients who appear on a given clinic day will be asked to complete two sets of questionnaires entitled: Locus of Control questionnaire and Lifestyle questionnaire. There is a total of 28 questions that will take approximately 15 minutes to complete. I will be available to answer any concerns that the clients may have during their participation. A consent form (attached) will be obtained from each client prior to his or her participation. Confidentiality of the clients' responses will be maintained by assigning a number to each client for all of the forms. I will also conduct a retrospective medical records review of the SHAPP clients participating in this study to obtain

additional research data to determine other variables of compliance.

I am requesting permission to conduct my research study within the counties of District 6. Due to my work commitment at Burke County Health Department, I may not be able to visit all of the SHAPP clinic areas. I have received a schedule of the SHAPP clinics throughout the District and will conduct the study as my work load permits within the next three months.

I feel that my research study will help to improve patient care and increase health care compliance, thereby reducing the morbidity rate of hypertensive clients in our District.

I appreciate your consideration in this matter. I am also grateful for your guidance and assistance throughout my graduate study.

Respectfully yours,

Teresita Maria Smith
Family Nurse Practitioner

# APPENDIX E

James G. Ledbetter, Ph.D./Commissioner

GEORGIA DEPARTMENT OF HUMAN RESOURCES

OFFICE OF REGULATORY SERVICES - ROOM 800
878 PEACHTREE STREET, N.E. / ATLANTA, GEORGIA 30309

October 29, 1990

Linda L. Johnson, R.N.
Richmond County Health Department
1001 Bailie Drive
Augusta, Georgia 30910

Dear Linda,

I am writing to advise you that the research proposal entitled "A Study of the Relationship Between Internal-External Locus of Control and Compliance of Public Health Clients with Chronic Hypertension Cared for by Nurse Practitioners" has been granted final approval by the DHR Human Research Review Board utilizing its expedited review process.

Sincerely,

Richard P. Tolcher
Executive Secretary
Human Research Review Board

RPT:vlw

# APPENDIX F

# INSTITUTIONAL REVIEW BOARD

# GEORGIA SOUTHERN UNIVERSITY

To be submitted to the Institutional Review Board for the protection of Human Subjects in Research prior to the initiation of any investigation involving human subjects. A copy of the research proposal and approval form must be attached.

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## APPROVAL FORM

Date: September 18, 1990

Research Title: A Study of the Relationship between Internal-External Locus of Control and Compliance of Public Health Clients with Chronic Hypertension cared for by Nurse Practitioners

Principal Investigator: Teresita Maria Smith Title: RN, BSN, FNP-C

Department: Nursing

~~Campus~~ Address: 504 Park Drive (home)
Waynesboro, GA 30830

Phone: 404-554-4829 (home)
404-554-3456 (work)

Signature: Teresita Maria Smith
Principal Investigator

Charlene M Hanson Ed.D, FNP-C
(if student research, major professor)

M. Christine Salmeldy, PhD, RN
Department Head

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Determination of Institutional Review Board:

Human Subjects: ____At Risk ✓ Not At Risk

Action: ✓ Approved ____Not Approved ____Reapproved

____Returned for Revisions

Signed: Robert M [illegible]
Chair, Institutional Review Board

Date: 2 Oct 1990

APPENDIX G

# CONSENT FORM

Research Title: The Relationship of Locus of Control and Compliance in Nurse-Practitioner-Managed Hypertension Clinics

Investigator: Teresita Maria Smith, RN,C

I have been invited to participate in a study that will look at my true personal feelings and lifestyle behavior. I have been invited to participate because I am a patient receiving care in the Blood Pressure Clinic at the health department.

This study is to help the Blood Pressure Clinic nurses determine how well the patients are responding to the treatment program. It will also help to determine ways in which to increase the patients' compliance to the treatment program.

I understand that I will not be paid or charged to participate in this study. I also understand that I will not be personally identified in the study and my name will not appear on any of the forms. All of the forms will be numbered instead. I understand that the results of the study will be available to me if I want them.

I will complete 2 sets of questionnaires entitled: Locus of Control Questionnaire and Lifestyle Questionnaire. I will answer a total of 28 questions. The questionnaires will take about 10-15 minutes to complete.

My participation is completely voluntary. I am at no risk when completing the questionnaires. I may withdraw from the study at any time. I understand that no one will be angry with me or withhold treatment if I refuse to participate in this study.

I have read the above (or had it read to me) and it has been explained to me. I have had the chance to ask questions and they have been answered. I understand the information that has been presented to me. If I should have any questions about the study, I may contact Maria Smith by phone at 404-554-3456 or Dr. Charlene Hanson at Georgia Southern University at 912-681-0017.

I hereby agree to participate in this study.

_____ _____

PATIENT'S SIGNATURE DATE

_____

INVESTIGATOR

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