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A Study of elderly hypertensive individuals and their health control beliefs

Karen M. Russ
San Jose State University

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control beliefs**

Russ, Karen Marie, M.S.

San Jose State University, 1989

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A STUDY OF ELDERLY HYPERTENSIVE
INDIVIDUALS AND THEIR HEALTH
CONTROL BELIEFS

A Thesis
Presented to
The Faculty of the Department of Nursing
San Jose State University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

By
Karen M. Russ

May 1989

APPROVED FOR THE DEPARTMENT OF NURSING

Irene Lewis

Irene Lewis, RN, DNSc, FAAN

Sandy Couser

Sandy Couser, MSN

Susan Murphy

Susan Murphy, RN, DNSc

APPROVED FOR THE UNIVERSITY

M. Lou Lewandowski

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ABSTRACT

A STUDY OF ELDERLY HYPERTENSIVE INDIVIDUALS AND THEIR HEALTH CONTROL BELIEFS

by Karen M. Russ

This study explored the relationship between health locus of control and mean arterial blood pressure in an elderly hypertensive population. Wallston, Wallston, and De Vellis' health locus of control model was the conceptual framework. Individuals who were hypertensive but not receiving anti-hypertensive medications participated. Respondents who met the criteria completed the MHLC and had four blood pressures taken.

Statistics were calculated by comparing the demographic characteristics and mean arterial pressures with the participants' MHLC profile. Only one categorical variable was significant. The mean arterial pressure of the internal health locus of control (IHLC) group was higher than both the powerful others health locus of control (PHLC) group and chance health locus of control (CHLC) group: 104.8 to 101.8 and 100.3 respectively. The hypothesis that IHLC participants would have the lowest mean arterial pressure was not supported. Recommendations: (a) replicate the study with a random sample; and (b) design a quasi-experimental longitudinal study.

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Chapter 1

INTRODUCTION

The problem of hypertension in the elderly population is assuming major proportions. More than one third of all individuals over age 60 in the United States suffer from hypertension (Gavras & Gavras, 1983, p. ix). It is projected that by the year 2030 the proportion of people over 65 years of age will be 17%, for a total of over 50,000,000 (Gavras & Gavras, p. xi). Thus, the number of elderly hypertensive individuals is likely to increase substantially over the next decade.

Pharmacological control of hypertension in the elderly is a conventional approach used by the medical community in treating the problem. The most common drugs prescribed by the elderly client's physician are diuretics (water pills), sympathetic or calcium channel blockers (the blockers), and endocrine inhibitors (the inhibitors).

The elderly have different responses to a given drug concentration at its site of action or target organs (altered pharmacodynamics) or to different handling of the drug by the aging organism (altered pharmacokinetics) (Gavras & Gavras, 1983, p. 12). A number of studies have presented evidence that differences in tissue reactivity become more pronounced with age. In particular, the central nervous system is believed to exhibit increased sensitivity

to the depressant effect of various drugs as a result of altered pharmacodynamics. Gavras & Gavras (p. xi), and Pagliaro and Pagliaro (1983, p. 140) reported that the age-related differences in response to various drugs are most likely the result of altered pharmacokinetics, which may lead to increased or decreased drug effect.

In view of these variable pharmacological processes, a conventional treatment of hypertension in the elderly should also consider nonpharmacological approaches. According to the 1984 Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure (Ibrahim, Chobanian, Horan, & Edward, 1985), nonpharmacologic therapy is the treatment of choice for most patients with isolated systolic hypertension (ISH). ISH is a disorder of systolic blood pressure that becomes increasingly prevalent with advancing age. ISH is defined as an elevated systolic blood pressure (greater than or equal to 160 mmHg) and a normal diastolic blood pressure (less than 90 mmHg).

Ideally, the nonpharmacologic therapy would be tailored to meet the individual's health locus of control profile. Health locus of control is the degree to which individuals perceive health status as a consequence of their own actions or unrelated to their own behavior (Lau & Ware, 1981).

Wallston, Wallston, and DeVellis (1978) developed the Multidimensional Health Locus of Control Scale (MHLC) in order to assess the degree to which individuals perceive

health status as a consequence of their own actions or unrelated to their own behavior. The Multidimensional Health Locus of Control Scale consists of three subscales: (a) internal, (b) chance, and (c) powerful others dimension of locus of control beliefs (Levenson, 1981). The internal scale (IHLC) assesses the degree to which an individual believes that his/her own behavior is responsible for health or illness. The chance scale (CHLC) assesses beliefs that an individual's level of health or illness is a function of luck, chance, fate, or uncontrollable factors. Lastly, the powerful others scale (PHLC) assesses an individual's beliefs that the degree of health or illness is determined by important figures such as physicians, other health professionals, parents, or friends.

Studies have been undertaken which have examined the effect of health locus of control on medication compliance in hypertensive subjects. For example, Kerr's (1986) study documented trends suggesting that persons who scored higher on chance health locus of control (CHLC) were less adherent to antihypertensive medication regimens than those who scored lower on the chance health locus of control dimension.

Statement of the Problem

A study of the relationship between health locus of control and blood pressure is especially important because: ✓
(a) the problem of hypertension in the elderly is assuming

major proportions (Gavras & Gavras, 1983, p. ix), and (b) the relationship between health locus of control and blood pressure in the elderly population has not been adequately studied.

Research Question

The primary research question was: What is the relationship between health locus of control and mean arterial blood pressure in an elderly hypertensive population?

Hypothesis

The hypothesis on which this study was based was this: Elderly hypertensive individuals with an internal health locus of control (IHLC) profile would have lower mean arterial blood pressures than those with a powerful others health locus of control (PHLC) profile or chance health locus of control (CHLC) profile.

Purpose and Need

The problem of nonadherence to antihypertensive medication protocols is widespread. The compliance of patients of different age groups with medication prescriptions has been studied extensively. Studies relating Multidimensional Health Locus of Control profiles with adherence to medication protocols are discussed in the review of the literature. However, this study was unique in that it attempted to relate the participant's blood pressure to a health locus of control dimension. This study holds

promise because the findings could be valuable in discovering nonpharmacological intervention strategies based on individual MHLC profiles.

For example, depending on the relationships identified between blood pressure and locus of control profiles, individuals could be characterized by the extent to which they were dependent on health providers (powerful others dimension), self-motivated (internal dimension), or compromised by their expectation that fate or forces beyond their control dictate health outcomes (chance dimension). Profiles that combined these three components on an individual's locus of control could be useful in selecting nonpharmacological treatment modalities specific to that individual's characteristics.

Previous studies have focused upon MHLC profiles and the effect of MHLC profiles on the participant's blood pressure and adherence to medication. The uniqueness of this study was that it focused solely upon the relationship of MHLC beliefs and blood pressure, without the intervening variable of pharmacologic interventions.

Definition of Terms

Operational

1. Health locus of control is a health specific indicator of generalized expectancy of locus of control of reinforcements as measured by the Multidimensional Health Locus of Control (MHJLC) Scale (Wallston, Wallston, &

DeVellis, 1978). The MHLC scale assesses the degree to which individuals perceive health status as a consequence of their own action or unrelated to their own behavior. Within the 18 items (Form B) there are three health locus of control subscales representing internal, chance, and powerful others dimensions of locus of control beliefs (Levenson, 1981). The internal scale (IHLC) assesses the degree to which an individual believes that his/her own behavior is responsible for health or illness; the chance scale (CHLC) assesses beliefs that an individual's level of health or illness is a function of luck, chance, fate, or uncontrollable factors; and the powerful others scale (PHLC) assesses an individual's belief that the degree of health or illness is determined by important figures such as physicians, other health professionals, parents, or friends.

2. Elderly clients are individuals over 55 years of age.

3. Blood pressure is the pressure of the blood against the blood vessel walls as recorded by a stethoscope and a sphygmomanometer.

4. Isolated systolic hypertension is a systolic blood pressure ≥ 160 mmHg and a diastolic < 90 mmHg (Ibrahim, Chobanian, Horan, & Edward, 1985).

5. Hypertension is defined as systolic blood pressure ≥ 140 mmHg and/or diastolic ≥ 90 mmHg (Ibrahim, Chobanian, Horan, & Edward, 1985).

6. Mean arterial pressure (MAP) is calculated from the systolic and diastolic pressure levels, as follows:

$$\text{MAP} = \frac{\text{systolic BP} + 2 (\text{diastolic BP})}{3}$$

The normal MAP is 96 torr (McClintic, 1975, p. 167).

Research Design

The research design was a descriptive, correlational design (LoBiondo-Wood & Haber, 1986, p. 136). The causes of hypertension are multifactorial. This study does not presume a cause and effect between hypertension and health locus of control. Rather, it simply explores the possibility of there being a relationship between blood pressure and health locus of control.

The data were collected by the use of four instruments: (a) the Descriptive Data Form, (b) a Semi-Structured Interview, (c) the MHLC Scale, and (d) a stethoscope and sphygomanometer. The health locus of control profile was the independent variable and the mean arterial pressure (MAP) was the dependent variable.

The researcher conducted a pilot test with four participants with similar characteristics who attended a senior center not used in the study. The purpose of the pilot test was to: (a) gather feedback from the participants regarding the way the questions were asked on the instruments, (b) determine whether the exclusionary criteria were too restrictive, and (c) determine the length

of time required to complete the study. The outcome of the pilot test permitted the researcher to refine the data collection methods.

Scope and Limitations

The study was limited to a convenience sample of 30 elderly Caucasian and Asian participants, age 55 and over, attending a senior center located in northern California. The participants were hypertensive and were not taking anti-hypertensive medications. The limitations of the study were:

1. The sample was not randomly selected. Therefore, the data cannot be construed to be representative of a different setting. These results have limited generalizability.
2. The researcher was unable to control for environmental factors, i.e., noise level, temperature, and color scheme of the room, etc., which may have influenced the participants' blood pressure.
3. The indirect method of blood pressure measurements consistently overestimates diastolic blood pressure irrespective of age (Gifford, 1987).

Chapter 2
CONCEPTUAL FRAMEWORK AND REVIEW
OF RELATED LITERATURE
Conceptual Framework

The health locus of control concept was derived from Rotter's (1954) social learning theory and reflects generalized expectancies for control of reinforcement. As originally conceived, the locus of control construct refers to the generalized expectation about the degree to which reinforcements are under one's own (internal) or others (external) control (I-E state).

More recent theory and research indicate that the locus of control construct is multidimensional (Levenson, 1981; Lau & Ware, 1981; Wallston & Wallston, 1982). The internal health locus of control dimension (IHLC) basically measures the same construct as developed by Rotter, that is, the extent to which individuals believe that personal behaviors directly affect health. The external locus of control was expanded into two separate dimensions: (a) a powerful other health locus of control dimension (PHLC), and (b) a chance locus of control dimension (CHLC). In the PHLC dimension, persons view their world as orderly and externally controlled by others (i.e., health professionals, family members, or other individuals having major impact on health status). In the CHLC dimension, persons view their world as

unpredictable and controlled by luck or fate.

Wallston, Wallston, and DeVellis (1978) used the health locus of control (HLOC) construct to relate Rotter's social-learning theory to health behavior. The purpose of the first validation study of the health locus of control scale (Wallston, Wallston, Kaplan, & Maides, 1976) was to test a theory. The authors theorized that subjects who held internal locus of control beliefs also choose to expose themselves to more information about a given health condition--hypertension--than externals. The initial development of the health locus of control scale involved 44 male and 44 female college students. The participants were told that the information they supplied about their health beliefs and knowledge of hypertensive problems would serve as a picture of the type of person who might use a proposed clinic.

All participants completed a booklet of instruments that contained background information about their prior experience with hypertension, the HLC and I-E scales, and a measure of the relative value that they placed on health. This latter scale asked subjects to rank order, by importance, 10 terminal values. Participants who ranked health in one of the top four positions were classified as having "high health value."

Participants next read a mildly threatening message about the dangers of hypertension--the "silent killer"--and

then took a difficult knowledge test designed to reinforce the feeling that this was a condition about which they knew little. The dependent variable, amount of information seeking, was operationalized by having subjects choose from among a list of 16 pamphlet titles relating to hypertension. The greater number of pamphlets a subject expressed interest in reading, the greater the amount of information seeking attributed to that subject. The three factors examined were: (a) health value (high or low); (b) Rotter's I-E classification (internal or external); and (c) HLC classification (internal or external).

The first factor, the health value scale asked subjects to rank order by importance 10 values. Subjects who ranked health in one of the top four positions were classified as having "high health value." The second factor, Rotter's I-E classification, was a generalized two-dimensional scale, which measured internal versus external locus of control. Persons characterized as internal believe that reinforcements are determined by personal effort, whereas, persons characterized as external believe that reinforcements are controlled by powerful others, luck, or fate. The third factor, the health locus of control scale, was a three dimensional health-specific scale. The internal dimension basically measures the same dimension as the I-E scale. The external dimension, however, is divided into two separate dimensions: a powerful other dimension and a

chance dimension.

There was a marginally significant interaction between health value and HLC classification, $F(1,80) = 3.02$, $p = .08$. No such trend was found for the interaction between health value and I-E classification ($F < .004$), nor did any of the other F values approach significance.

Consistent with the hypothesized prediction, when HLC was used as the basis of classification, high health value internals chose more pamphlets than all other types of subjects. No such result would have been evident if Rotter's more general I-E scale had been the only basis for classifying subjects as internal or external.

In Wallston et al.'s (1978) second validation study, the researchers tested the hypothesis that subjects in a weight reduction program whose orientation was consistent with their generalized expectancies would be more satisfied and more successful than subjects in a program inconsistent with their locus of control beliefs. Thirty-four overweight women with a mean age of 21 who were students or staff members at two small private southern colleges served as subjects. At the beginning of the study, these subjects averaged 32.4 lbs overweight. A pre-experimental test battery, including the HLC and I-E scales was administered to all subjects by an experimenter. Subjects matched on HLC scores were randomly assigned to one or two weight reduction treatments--a self-directed program (internally oriented) or

a group program (externally oriented). Regular data on weight loss and caloric intake was obtained from all subjects during the 8-week program.

Using the I-E scale, the weight loss results were in a direction opposite to the hypothetical prediction. However, using the HLC scale, the results were in the expected direction, with externals losing more weight in the group program ($\bar{M} = 10.86$) than in the self-program ($\bar{M} = 9.56$) and internals losing more weight in the self-program ($\bar{M} = 8.13$) than in the group program ($\bar{M} = 7.11$). These two studies provided evidence of discriminate validity for the HLC classification.

The two studies presented offered preliminary evidence of the construct validity of the HLC scale and demonstrate the functional utility of using an area-related measure of locus of control over the more generalized I-E scale.

Review of Related Literature

Health Locus of Control

Numerous studies have been undertaken to determine the role that health locus of control plays in various health related behaviors. The results of the studies, however, were conflicting.

Studies have found that people who were higher on internality were more knowledgeable about their disease and its management (Seeman & Evans, 1962; Strickland, 1978).

Persons with higher internal scores were more actively involved, more autonomous in their decision making, and able to make better use of relevant information to promote health than persons with higher external scores (external).

The study by Balch and Ross (1975) concerning success in a weight reduction program found that persons with higher internal health locus of control were more likely to complete the program and lose more weight than those with external health locus control profiles. Other studies have examined the health locus of control construct (James, Woodruff, & Warren, 1965; Phares, 1968; Pender, 1985). Persons with higher internal locus of control were more likely to be users of contraceptives than were persons with higher external locus of control (Phares, 1968). Persons with higher internal locus of control were more likely to be non-smokers than smokers (James et al., 1965). A more recent study focused on the effects of relaxation training on anxiety and health locus of control. Following instructions in progressive muscle relaxation, trained clients reported less anxiety, were more internal in HLOC, and less chance-oriented than a comparable group. The relaxation group showed a significant increase in perception of internal control over health status from baseline to follow-up (Pender).

Two studies involving the relationship between the adherence to medication and locus of control offered little

empirical evidence to support the construct (Kerr, 1986; Lewis, Morisky, & Flynn, 1978). Kerr's study (1986) involved 115 subjects diagnosed with hypertension. The dependent variables included: (a) adherence to prescribed medication, and (b) diastolic blood pressure readings (DBP). The independent variables were: (a) MHLC scale scores--(IHLC), (PHLC), and (CHLC); (b) profiles of health locus of control characteristics; and (c) health value scale.

The subjects were recruited by distributing flyers about the project at their work sites--a newspaper firm, and two telephone companies. All subjects were asked to write the name and daily dose of the pills prescribed for them. All subjects completed the MHLC scale (form A) and a three-item health value scale. All subjects had their blood pressures taken. DBP was used as the preintervention blood pressure level.

Subjects were randomly assigned to four groups: one group was randomly given a lecture on hypertension; a second group was taught to self-monitor their blood pressure and were given blood pressure cuffs to take home; a third group had both lecture and self-monitoring interventions; and the fourth group served as the control group. All subjects were asked to record the number of pills they took and their blood pressure readings. The study found that there was no detectable difference in adherence (chi-square test,

$p = 0.40$) between clients with lower or higher levels of IHLC, PHLC, and CHLC. Overall, 38% of the clients had lowered DBP levels at the end of the study.

In Lewis, Morisky, and Flynn's study (1978), measured compliance behavior was measured in 318 predominantly female, black, low-income hypertensive patients. More than half had 10 years or less of formal schooling. The internal consistency reliability of the 11 item HLC scale was .36. This contrasts with an alpha reliability of .72 reported for the population on which the scale was originally developed. The original sample consisted of 98 healthy young adults from community colleges. Demographic characteristics may account for the differences in the alpha reliabilities observed.

In Lewis et al.'s (1978) study, the construct validity of the health locus of control scale, tested by its relationships with perceived home assistance, health value, and self-reported medication-taking compliance, received limited empirical support. The hypothesized three-way interaction of health value, home assistance, and health locus of control was not statistically significant in explaining variation in compliance behavior. The results of Lewis et al.'s (1978) and Kerr's (1986) studies were inconclusive.

Pharmacological Control of Hypertension

Hypertension is common in the elderly. More than one

third of all individuals over age 60 in the United States suffer from hypertension (Gavras & Gavras, 1983, p. 5). Pharmacological control of hypertension in the elderly is the conventional approach by the medical community in solving the problem. This may not always be to the individual's advantage.

The elderly have different responses to a given drug concentration at its site of action or target organs (altered pharmacodynamics). Different handling of the drug by the aging organism (altered pharmacokinetics) (Gavras & Gavras, 1983, p. 121) has also resulted in the inexactness of dosing in the elderly. Gavras and Gavras found that the age-related differences in response to various drugs are mostly the result of alterations in the handling of drugs (pharmacokinetics), which may lead to increased or decreased drug effect (p. 122).

The older adult suffers two to five times the frequency of adverse effects from drug therapy as the younger adult, and from 5% to 30% of elderly admissions may be associated with inappropriate drug therapy (Pagliaro & Pagliaro, 1983, p. 1). Clinicians who work with the elderly tend to avoid the use of antihypertensive agents such as clonidine, methyldopa, and reserpine because of their potential for central nervous system depression; whereas guanethidine is often avoided because of the increased susceptibility of the elderly to postural hypotension (O'Malley & O'Brien, 1980).

Instead, treatment is often begun with either an oral thiazide diuretic or a B-adrenergic blocking agent (O'Malley, Judge, & Crooks, 1980). However, these drugs also predispose the elderly to selected drug interactions.

Pagliaro and Pagliaro (1983, p. 287) found that thiazide and related diuretics may cause the adverse effect of hyperglycemia in diabetes. Hyperuricemia also tends to occur and this can precipitate gouty arthritis. Hypokalemia may occur unless clients are on potassium-rich diets. Borderline renal or hepatic insufficiency may be unpredictably aggravated by these drugs.

Gavras and Gavras (1983, p. 152) state that the side effects of B-blockers are predictable because they are mostly inherent in their mode of action: broncho-constriction, peripheral vasoconstriction, extreme bradycardia, congestive heart failure, masking of hypoglycemia symptoms, and prolongation of hypoglycemic attacks in diabetics. Furthermore, B-blockers have been described as a cause of dementia, or premature senility (Small & Jarvik, 1982). These adverse reactions suggest a need for a greater emphasis on nonpharmacologic therapy.

Considering the the wide range of pharmacologic effects, this study did not attempt to measure drug compliance behavior, rather it attempted to determine the relationship between health locus of control and blood pressure in a well-elderly population.

Summary

The studies cited (Balch & Ross, 1975; James, Woodruff, & Warren, 1965; Pender, 1985; Phares, 1968; Seeman & Evans, 1962; Strickland, 1979) that supported Wallston, Wallston, and DeVellis (1978) health locus of control theory concluded that there was a significant relationship between health behavior and health locus of control classification. Other studies (Kerr, 1986; Lewis, Morisky, & Flynn, 1978) did not support the health locus of control theory and found little empirical evidence to support the construct; that is, they did not find a significant relationship between health behavior and health locus of control classification. Lewis et al.'s study involving hypertension and locus of control did not include elderly subjects.

The studies cited (Gavras & Gavras, 1983; O'Malley, Judge, & Crooks, 1980; O'Malley & O'Brien, 1980; Pagliaro & Pagliaro, 1983; Small & Jarvik, 1982) described some of the possible adverse reactions to the most widely prescribed antihypertensive drugs. Gavras and Gavras (1983) stated that:

more than one third of all individuals over age 60 in the United States have either isolated systolic blood pressure elevation or combined systolic and diastolic hypertension. Epidemiological data have demonstrated that hypertension is an important risk factor for most cardiovascular complications. (p. ix)

The need for a greater emphasis on nonpharmacologic therapy in the treatment of hypertension in the elderly is apparent.

Chapter 3

THE METHOD

Research Design

This was a descriptive, correlational study. Several forms of data were gathered including: the Schedule Interview, the Multidimensional Health Locus of Control Scale, the Descriptive Data Form, and blood pressure readings taken on the right and left arms in a sitting position.

The pilot study involved four elderly volunteer participants with similar characteristics. The purpose of the pilot study was to determine the feasibility of the research criteria. All of the criteria proved feasible for inclusion in the study except for the blood pressure recording method. The participants were not willing to have their blood pressures taken in the standing position; therefore, this step was omitted from the proposed methodology. Blood pressure analyses by experts have omitted this procedure from their methodology (Gavras & Gavras, 1983, p. 23; Kerr, 1986).

Sample

This study used a convenience sample of 30 well elderly Caucasian and Asian seniors. Permission was obtained from the director of the senior center to approach the seniors concerning participation in the study. Individuals

attending a northern California senior center were approached and invited to participate in a study about individuals' health beliefs and their blood pressure. Seniors who were taking blood pressure medications were excluded from the sample. This restriction was necessary in order to reduce the number of variables that might alter blood pressure values. Participants under 55 years of age were also excluded from the study. This age restriction was chosen in order to increase homogeneity of the sample. Attempting to study broader age ranges would require a much larger sample in order to obtain significant findings. In addition, in order to be eligible participants needed to be able to read and write English. The lack of a readily accessible translator necessitated the English requirement.

The researcher found the director of the senior center interested in the study and willing to allow the researcher to approach the potential participants for their consent to participate in the study.

Setting

A senior center, located in a middle class suburban area with approximately 60,000 citizens, provided the setting for the initial contact with potential participants. The center provides activities for a predominantly Caucasian and Asian racial population. Seniors were approached to participate in the study regardless of the type of activity in which they were involved at the time. All of the data

collected for the study was obtained within the senior center setting.

Data Collection Instruments

The data collection instruments used in the study were (a) the Schedule Interview; (b) the Descriptive Data Form; (c) the Multidimensional Locus of Control (MHLC) Scales (Wallston et al., 1978); and (d) a blood pressure cuff and an acoustical stethoscope. The data collection instruments were anonymously completed by the participants.

The Schedule Interview

The Schedule Interview was developed by the researcher in order to determine participant eligibility for the study and to collect data on the participants' health status (Appendix C). Standardized questions were administered to the participants. This format allowed the researcher to reread the questions to the participant upon request. All of the questions were asked in the same order.

Descriptive Data Form

The Descriptive Data Form collected data on the elderly client's marital status, sex, religion, education, present and/or former occupation, income, residential status, living arrangement, age, height, and weight. The data obtained from the Descriptive Data Form was used to characterize the sample; no attempt was made to investigate possible relationships between the characteristics of the sample and the variables.

MHLC Scales

The MHLC Scale was used to assess the degree to which individuals perceive health status as a consequence of their own actions or unrelated to their own behavior. Of the 18 items (form B) there were three Likert-type subscales of six statements each, all designed to measure internal health locus of control (IHCL), powerful others locus of control (PHLC), and chance health locus of control (CHLC). The three subscales were combined into an 18-item MHLC.

Permission to use the MHLC Scales was obtained from the designer (Appendix F). The print was enlarged to make the scale easier to read for those participants with poor visual acuity. The instructions were written on the first page of the scale. They informed the participants that they might agree or disagree with the 18 declarative statements. The participants were instructed to respond to each statement by circling a number from "strongly agree" (1) to "strongly disagree" (6). The participant was informed that there was no right or wrong answer and that the purpose of the scale was to measure their personal beliefs.

The Sphygmomanometer

The sphygmomanometer, or blood pressure cuff, that was used in the study was the mercury gravity instrument. The use of the mercury sphygmomanometer was based on analyses by experts on the subject of hypertension (Bennett, 1984; Gavras & Gavras, 1983; Kerr, 1986). The instrument included

a pressure manometer, an inflatable rubber bladder encased in a cloth cuff, and a rubber hand bulb with a pressure control valve. The sphygmomanometer cuff was one-third wider than the extremity in which the blood pressure was taken (Malasanos, Barkanskas, Moss, & Stoltenberg, 1977, p. 113).

The Stethoscope

The stethoscope used was the acoustical stethoscope. The bell of the stethoscope was used since it is more effective than the diaphragm in transmitting low-frequency Korotkoff sound (Malasanos et al., 1977, p. 113).

Data Collection Procedures

Individuals meeting at a northern California senior center were approached by the researcher and were invited to participate in a blood pressure study. If they agreed, they were asked to sign an informed consent (Appendix A). After the informed consent was signed, the participants' blood pressure was taken in the sitting position in the right and left arm. Then, the participants were asked to fill out a descriptive data sheet (Appendix B). Those participants meeting the inclusionary age criteria from the descriptive data sheet were interviewed by the researcher. The researcher then utilized the Schedule Interview. The questions from the Schedule Interview were asked by the researcher to the participant in the same order. The questions were rephrased as necessary for clarification.

Thus, the semistandardized questioning procedure was followed. After subjects completed the Schedule Interview, they were asked to complete the Multidimensional Health Locus of Control (MHLC) questionnaire. Lastly, their blood pressures were repeated in the right and left arm in the sitting position.

The Descriptive Data Forms, the Schedule Interview, the MHLC Scales, and the blood pressure recording forms were coded with numbers. None of the participants' names were indicated on the forms in order to assure confidentiality.

Analysis of the Data

Descriptive statistics describing the total sample were presented for all variables analyzed. However, inferential statistics were used based upon findings from the MHLC. The MHLC scale (form B) consisted of three Likert-type subscales of six statements each, all designed to measure (IHLC), (PHLC), and (CHLC). The three subscales were combined into an 18-item MHLC. The score on each subscale was the sum of the values circled for each time in that subscale (Appendix D). The highest subscale score was the participants' MHLC profile; this MHLC profile provided three groups of subjects (IHLC, PHLC, or CHLC). Tables were provided for ease in comparison of demographic and schedule interview data for the three MHLC groups. A detailed analysis and interpretation follows.

After the participants' MHLC profiles were determined,

their mean systolic and diastolic blood pressures were calculated from the four blood pressure readings. Eligibility for inclusion in the study required only one hypertensive reading out of the four blood pressure readings. Thus, a normotensive mean blood pressure reading was acceptable for inclusion in the study. The participants' mean systolic and diastolic blood pressures were reduced to one number for purposes of statistical calculation. The number was the Mean Arterial Pressure (MAP). Lastly, the participants' MAP was inferentially compared with their MHLC profiles through a one-way ANOVA (analysis of variance) and a two-way ANOVA (the MHLC profile group and the hypertension group).

Chapter 4

ANALYSIS AND INTERPRETATION OF DATA

This chapter describes the data and the procedures used in analyzing the data. The Descriptive Data Form collected data on the participants' marital status, gender, religion, education, occupation, income, residential status, living arrangement, age, height, and weight. The Schedule Interview collected data on blood pressure, blood pressure medication, nonsteriodal anti-inflammatory drugs, kidney disease, cardiovascular accidents, endocrine disorders, and smoking.

All categorical variables were summarized by number (frequency) and percent according to MHLC profile group and the total sample. A chi-square analysis was used to determine significant differences in proportions in the different categories according to MHLC profile group. Caution should be used in interpreting the chi-square statistic where there was less than five in any cell because the chi-square statistic and probability may not be valid.

All continuous variables were summarized by the average (mean), standard deviation, and range. A one-way ANOVA was used to test for significant differences between MHLC profile groups and these continuous variables.

The hypothesis proposed in this study was that elderly participants with an Internal Health Locus of Control

profile (IHLC), would have a lower Mean Arterial Pressure (MAP) than those with a Power Others Health Locus of Control profile (PHLC) or Chance Health Locus of Control profile (CHLC).

Categorical Variables

There were no significant differences ($p < .05$) between MHLC profile groups in most of the categorical variables. The following percentages concern the variables listed in Table 1.

Marital Status

Fourteen (47%) of the participants were widowed, 12 (40%) were married, three (10%) were divorced, and one was single.

Gender

Twenty-one (70%) of the participants were female. Nine (30%) of the participants were male.

Religion

Fourteen (47%) of the participants were Protestant, eight (27%) of the participants were Catholic, three (10%) were Jewish, one was Buddhist, three (10%) were other, and one declined to state an affiliation with an organized religion.

Occupation

Twenty-seven (90%) of the participants were retired and three (10%) declined to state their occupation.

TABLE 1 (PAGE 1 OF 3)

Categorical Demographic Characterization and MHLC Profile Group

	<u>GROUP I</u>	<u>GROUP P</u>	<u>GROUP C</u>	<u>TOTAL</u>
MARITAL STATUS				
MARRIED	3 (38%)	2 (29%)	7 (47%)	12 (40%)
SINGLE		1 (14%)		1 (3%)
DIVORCED	1 (13%)		2 (13%)	3 (10%)
WIDOWED	4 (50%)	4 (57%)	6 (40%)	14 (47%)
P-VALUE =	.552%			
GENDER				
FEMALES	7 (88%)	5 (71%)	9 (60%)	21 (70%)
MALES	1 (13%)	2 (29%)	6 (40%)	9 (30%)
P-VALUE =	.389%			
RELIGION				
BUDDHIST			1 (7%)	1 (3%)
CATHOLIC	4 (50%)	1 (14%)	3 (20%)	8 (27%)
JEWISH	2 (25%)		1 (7%)	3 (10%)
PROTESTANT	2 (25%)	4 (57%)	8 (53%)	14 (47%)
NONE			1 (7%)	1 (3%)
OTHER		2 (29%)	1 (7%)	3 (10%)
P-VALUE =	.324%			
OCCUPATION				
RETIRED	7 (88%)	7 (100%)	13 (87%)	27 (90%)
NOT STATED	1 (13%)		2 (13%)	3 (10%)
P-VALUE =	.601%			
INCOME				
0-10K	5 (63%)	4 (57%)	7 (47%)	16 (53%)
10K-20K	1 (13%)	1 (14%)	6 (40%)	8 (27%)
20K-30K	1 (13%)	2 (29%)	1 (7%)	4 (13%)
30K-40K	1 (13%)			1 (3%)
50K-60K			1 (7%)	1 (3%)
P-VALUE =	.458%			

& CHI-SQUARE TEST FOR GROUP DIFFERENCES

TABLE 1 (PAGE 2 OF 3)

Categorical Demographic Characterization and MHLC Profile Group

	<u>GROUP I</u>	<u>GROUP P</u>	<u>GROUP C</u>	<u>TOTAL</u>
RESIDENTIAL STATUS				
RENT	4 (50%)	1 (14%)	4 (27%)	9 (30%)
OWN	4 (50%)	5 (71%)	10 (67%)	19 (63%)
OTHER		1 (14%)	1 (7%)	2 (7%)
P-VALUE =	.531&			
LIVING ARRANGEMENT				
ALONE	4 (50%)	5 (71%)	6 (40%)	15 (50%)
W. FAMILY	4 (50%)	2 (29%)	8 (53%)	14 (47%)
W. OTHER			1 (7%)	1 (3%)
P-VALUE =	.628&			
OBESITY				
OBESE	6 (75%)	5 (71%)	8 (53%)	19 (63%)
NORMAL	2 (25%)	2 (29%)	7 (47%)	11 (37%)
P-VALUE =	.519&			
HYPER				
YES	7 (88%)	5 (71%)	12 (80%)	24 (80%)
NO	1 (13%)	2 (29%)	3 (20%)	6 (20%)
P-VALUE =	.740&			
HIGH BP				
YES	5 (63%)	3 (43%)	5 (33%)	13 (43%)
NO	3 (38%)	4 (57%)	10 (67%)	17 (57%)
P-VALUE =	.405&			
HISTORY OF HIGH BP				
YES	5 (63%)	3 (43%)	6 (40%)	14 (47%)
NO	3 (38%)	4 (57%)	9 (60%)	16 (53%)
P-VALUE =	.573&			

& CHI-SQUARE TEST FOR GROUP DIFFERENCES

TABLE 1 (PAGE 3 OF 3)

Categorical Demographic Characterization and MHLG Profile Group

	<u>GROUP I</u>	<u>GROUP P</u>	<u>GROUP C</u>	<u>TOTAL</u>
NSAIDS				
YES	2 (25%)			2 (7%)
NO	6 (75%)	7 (100%)	15 (100%)	28 (93%)
P-VALUE =	.0536			
KIDNEY DISEASE				
YES			2 (13%)	2 (7%)
NO	8 (100%)	7 (100%)	13 (87%)	28 (93%)
P-VALUE =	.3436			
ENDOCRINE				
YES	3 (38%)		1 (7%)	4 (13%)
NO	5 (63%)	7 (100%)	14 (93%)	26 (87%)
P-VALUE =	.0586			
SMOKE				
YES		2 (29%)		2 (7%)
NO	8 (100%)	5 (71%)	15 (100%)	28 (93%)
P-VALUE =	.0306			
HISTORY OF SMOKING				
YES		2 (29%)	3 (20%)	5 (17%)
NO	8 (100%)	5 (71%)	12 (80%)	25 (83%)
P-VALUE =	.2966			

& CHI-SQUARE TEST FOR GROUP DIFFERENCES

High Blood Pressure

The presence or absence of high blood pressure was based upon the mean of four systolic and diastolic readings. Seventeen (57%) of the participants did not fall into the high blood pressure category. Thirteen (43%) of the participants were categorized with high blood pressure.

History of High Blood Pressure

A majority of the participants, 17 (57%) reported that they did not have a history of high blood pressure. Thirteen (43%) reported that they had a history of high blood pressure.

Nonsteroidal Anti-inflammatory Drugs (NSAIDS)

Only two participants were taking NSAIDS.

Kidney Disease

Only two participants reported that they had kidney disease.

Endocrine Disorder

A majority of the participants, 26 (87%) reported that they did not have an endocrine disorder. Four (13%) participants reported an endocrine disorder. During the Schedule Interview, the participants reported that the disorder was non-insulin dependent diabetes mellitus.

Smoking

Twenty-eight of the participants were not smoking, while two (7%) of the participants were smoking. Smoking and PHLC profile group was significant at the p-value

of 0.030. The p-value may not be significant because there were less than five participants in the smoking cell.

History of Smoking

Twenty-five (83%) of the participants did not report a history of smoking. Five (17%) reported a history of smoking.

Income

A majority of the participants, 16 (53%) received an income ranging between \$0.00 and \$10,000. Eight (27%) reported an income ranging between \$10,000 and \$20,000, four reported an income ranging between \$20,000 and \$30,000 one reported an income ranging between \$30,000 and \$40,000 and one reported an income ranging between \$50,000 and \$60,000.

Residential Status

Nineteen (63%) owned their own residence. Nine (33%) rented a home, apartment, or mobile home. Of the two participants that stated other, one was homeless and one was in transit, living with various relatives.

Living Arrangement

Fifteen (50%) of the participants lived alone. Fourteen (47%) lived with family member(s), and one lived with a person other than a family member.

Obesity

The participants' Ideal Body Weight was calculated from their reported height and frame size. Nineteen (63%) of the participants were obese. Eleven (37%) participants

maintained an Ideal Body Weight.

Hypertension

Twenty-four (81%) of the participants reported that they had hypertension. Six participants reported that they did not have hypertension.

Continuous Variables

Among the continuous variables, there was a significant mean difference between MHLC groups (IHLC, CHLC, and PHLC) in the packs smoked per day variable. The significant difference between MHLC groups on packs of cigarettes smoked per day was due to smokers in the PHLC group only; no one of the IHLC or CHLC smoked (Table 2).

The significant group difference on IHLC, PHLC, and CHLC confirmed the grouping according to highest subscale score. The IHLC group had a significantly higher mean IHLC score (24.3) than either PHLC (11.1) or CHLC (11.5) groups. The PHLC group had a significant higher PHLC score (25.6) than either IHLC (19.0) or CHLC (19.1) groups.

Although the overall ANOVA for MAP was not significant at the $p < .05$ level, the IHLC group was higher on average than the PHLC and CHLC groups: 104.8 to 101.8 and 100.3 respectively. The overall two factor ANOVA (PHLC group and hypertension group) showed a significant mean difference between the hypertension group on the MAP dependent variable 103.2 to 96.6.

Fisher's least significant difference (LSD) post-hoc

TABLE 2 (PAGE 1 OF 3)

Continuous Demographic Characterization and MHLC Profile Group

	<u>GROUP I</u>	<u>GROUP P</u>	<u>GROUP C</u>	<u>TOTAL</u>
NO. OF SUBJECTS	8	7	15	30
AGE				
MEAN	71.3	72.7	72.5	72.2
STD. DEV.	5.3	8.3	7.7	7.1
RANGE	65-79	64-83	61-90	61-90
P-VALUE =	.905*			
EDUCATION				
MEAN	11.4	12.4	12.6	12.2
STD. DEV.	4.6	3.0	2.1	3.1
RANGE	3-18	8-16	8-18	3-18
P-VALUE =	.666*			
HEIGHT				
MEAN	63.9	63.3	65.5	64.6
STD. DEV.	2.8	4.0	4.4	3.9
RANGE	61-68	59-69	59-72	59-72
P-VALUE =	.399*			
WEIGHT				
MEAN	158.0	136.0	150.9	149.3
STD. DEV.	12.3	30.2	24.9	24.3
RANGE	145-185	90-185	113-184	90-185
P-VALUE =	.207*			
YEARS SMOKED				
MEAN	0.0	6.4	0.0	1.5
STD. DEV.	0.0	14.9	0.0	7.3
RANGE	0- 0	0-40	0- 0	0-40
P-VALUE =	.126*			
PACKS PER DAY				
MEAN	0.0	0.3	0.0	0.1
STD. DEV.	0.0	0.5	0.0	0.3
RANGE	0- 0	0- 1	0- 0	0- 1
P-VALUE =	.027*			

* FROM ANOVA FOR GROUP DIFFERENCES.

TABLE 2 (PAGE 2 OF 3)
Continuous Demographic Characterization and MHLC Profile Group

	<u>GROUP I</u>	<u>GROUP P</u>	<u>GROUP C</u>	<u>TOTAL</u>
HISTORY OF PACKS PER DAY				
MEAN	0.0	0.3	0.3	0.2
STD. DEV.	0.0	0.5	0.8	0.6
RANGE	0- 0	0- 1	0- 3	0- 3
P-VALUE =	.520*			
HISTORY YEARS SMOKED				
MEAN	0.0	12.9	2.7	4.3
STD. DEV.	0.0	22.1	5.6	11.9
RANGE	0- 0	0-50	0-15	0-50
P-VALUE =	.079*			
SYSTOLIC BP				
MEAN	147.3	143.9	145.4	145.5
STD. DEV.	7.2	6.5	8.3	7.5
RANGE	139-162	137-154	138-170	137-170
P-VALUE =	.693*			
DIASTOLIC BP				
MEAN	83.6	80.7	77.8	80.0
STD. DEV.	4.4	7.2	5.3	5.9
RANGE	77-91	65-86	70-85	65-91
P-VALUE =	.072*			
MEAN ARTERIAL PRESSURE				
MEAN	104.8	101.8	100.3	101.9
STD. DEV.	3.7	6.1	4.8	5.1
RANGE	98-110	90-108	94-113	90-113
P-VALUE =	.128*			

* FROM ANOVA FOR GROUP DIFFERENCES.

TABLE 2 (PAGE 3 OF 3)

Continuous Demographic Characterization and MHLC Profile Group

	<u>GROUP I</u>	<u>GROUP P</u>	<u>GROUP C</u>	<u>TOTAL</u>
IHLC				
MEAN	24.3	11.1	11.5	14.8
STD. DEV.	10.9	3.7	3.8	8.5
RANGE	11-39	6-16	6-17	6-39
P-VALUE =	.0002*			
PHLC				
MEAN	19.0	25.6	16.1	19.1
STD. DEV.	8.0	8.0	6.3	7.9
RANGE	11-30	11-34	7-28	7-34
P-VALUE =	.028*			
CHLC				
MEAN	16.9	20.0	25.9	22.1
STD. DEV.	7.2	7.0	5.9	7.4
RANGE	6-31	11-28	16-33	6-33
P-VALUE =	.010*			

* FROM ANOVA FOR GROUP DIFFERENCES.

t-test revealed a significant difference between the IHLC group and the CHLC group with the IHLC group revealing a higher MAP (104.8) than the CHLC group (100.3). Also there were a few pair-wise interactions that showed significant differences ($p < .05$):

1. The MAPs of the IHLC hypertensives were significantly higher than the CHLC hypertensives, CHLC normotensives, and PHLC normotensives.
2. The MAPs of the PHLC hypertensives were significantly higher than the CHLC normotensives and PHLC normotensives.
3. The MAPs of the IHLC group participants with a history of hypertension were significantly higher than the MAPs of the CHLC group participants with a history of hypertension. These relationships are graphically presented in Figures 1 and 2.

Figure 1: Plot of MAP by HLC Group and Hypertension

Figure 2: Plot of MAP by HLC Group and History of High Blood Pressure

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

This chapter describes conclusions drawn from the study's findings. In addition, recommendations for future studies and the implications of the study for nursing practice are discussed.

Conclusions

This study found that the overall ANOVA for the participants' mean arterial pressure and health locus of control profile was not significant at the $p < .05$ level. However, the IHLC group was higher on average than the PHLC and CHLC group: 105.8 to 101.8 and 100.3 respectively. Furthermore, Fisher's least significant difference (LSD) post-hoc t -test revealed a significant difference between the IHLC group and the CHLC group with the IHLC group revealing a higher MAP (104.8) than the CHLC group (100.3). Interestingly, the MAPs of the IHLC group participants with a history of hypertension were significantly higher than the MAPs of the CHLC group participants with a history of hypertension. The precise nature and generalizability of these findings are unknown.

These findings refute the hypothesis which states that participants with an IHLC would have lower MAPs than those with a CHLC or PHLC. The results support the hypothesis that elderly hypertensive individuals with an IHLC have

higher MAPs than those individuals with a CHLC or PHLC.

Since individuals with an IHLC believe that they can determine their own fates, within limits, a suggestion can be implied that the personality trait represented by the IHLC profile could have an adverse effect on one's blood pressure. For example, individuals who hold IHLC beliefs may feel responsible for their health, perhaps to the detriment of their health. They may be fearful of losing control if they enlist external support for their health problems. Conversely, since individuals with a CHLC profile believe that their level of health or illness is a function of luck, chance, fate, or uncontrollable factors, a suggestion can be implied that the personality trait represented by the CHLC profile could have a lowering effect on one's blood pressure. For example, individuals who hold CHLC beliefs may enlist external support when they feel that they cannot manage their own health problems.

The non-experimental design and small sample size prevent the generalization of these findings to a larger population. However, two findings should stimulate further research into the relationship between health locus of control and hypertension in the elderly: (a) the findings that the MAPs of the IHLC group were higher on average than both the PHLC and CHLC group; and (b) the finding that the MAPs of the IHLC group with a history of high blood pressure were significantly higher than the MAPs of the CHLC group

with a history of high blood pressure.

Recommendations for Future Studies

Recommendations for future studies include:

1. Replicate this study with a larger and randomized sample to allow greater generalization of the findings.
2. Institute a longitudinal experimental study that allows for the introduction of a nonpharmacological modality. Compare the participants' pre- and post-intervention blood pressures with their health locus of control profiles.
3. Expand the exclusionary criteria to control for sex, race, ethnic, or cultural background to determine if these factors have an influence on blood pressure.
4. Design an experimental or quasi-experimental study that allows for the manipulation of the subjects' locus of control, such as providing biofeedback or medication, to determine the effects of altering subjects' locus of control on their blood pressure.

Implications for Nursing Practice

The health locus of control construct has valuable implications for nursing practice. Since age-related changes in pharmacokinetics and in receptor sensitivity to drugs predispose geriatric clients to adverse reactions and interactions (Pagliaro & Pagliaro, 1983, p. 140), it is important that health professionals remain open to alternative testing and treatment modalities.

For example, it would be worthwhile examining whether a hypertensive individual with an IHLC profile would respond better to treatment with a drug versus a nonpharmacological modality. The possibilities relating HLC profiles to blood pressure are far reaching. The deciding factor would be the willingness of the client and the nurse or other health professional to participate in alternative, nonpharmacologic treatment modalities.

Three nonpharmacologic modalities which have proven successful in treating hypertension are (a) safe and appropriate exercise, (b) proper nutrition, and (c) effective stress management (Bennett, 1984, p. 53). These three modalities have an interrelated and synergistic effect in reducing blood pressure.

The safe and appropriate exercise prescribed by Dr. Bennett is aerobic exercise (Bennett, 1984, p. 307). Aerobic exercise is exercise that moves the larger muscles freely, generates heat in the body, and thus burns up oxygen. Aerobic exercises include walking, jogging, running, skating, swimming, cycling, cross country skiing, and even dancing.

According to Bennett (1984, p. 287) proper nutrition would restrict sodium intake to 50 millimoles a day. The typical American eats about 180 to 200 millimoles of sodium a day (Bennett, p. 287). Bennett recommends a natural diet of fresh vegetables, fruits, and grains. These foods are

low in sodium and rich in potassium. Potassium promotes a loss of salt from the body. It acts like a diuretic and so can be an important factor in reducing blood pressure (MacGregor, 1983).

Lastly, effective stress management techniques recommended by Bennett (1984, pp. 344-349) are play, assertiveness, positive imagery, affirmations, meditation, and muscle relaxation. He emphasized that anyone can learn these techniques, but they can only be mastered by frequent practice.

A program using nonpharmacologic modalities, such as the ones aforementioned, could be tailored to meet the individual's health locus of control profile. Ideally, the program would offer the participants a reassuring, day-by-day approach to better health. The amount of control over the pacing of the program and the choice of treatment modalities would be based upon their locus of control profile.

REFERENCES

References

- Balch, P., & Ross, D. W. (1975). Predicting success in weight reduction as a function of locus of control: A unidimensional multidimensional approach. Journal of Consulting and Clinical Psychology, 43, 119.
- Bennett, C. (1984). Control your high blood pressure without drugs! New York: Doubleday.
- Gavras, H., & Gavras, I. (1983). Hypertension in the elderly. London: John Wright.
- Gifford, R. (1987). Geriatric hypertension: Chairman's comments on the NIH working group report. Geriatrics, 42, 45-50.
- Ibrahim, M., Chobanian, A. V., Horan, M., & Edward, J. R. (1985). Hypertension prevalence and the status of awareness, treatment, and control in the United States: Final report of the subcommittee on definition and prevalence of the 1984 Joint National Committee. Hypertension, 7, 457-468.
- James, W., Woodruff, A., & Warren, W. (1965). Effect of internal and external control upon changes in smoking behavior. Journal of Consulting and Clinical Psychology, 29, 184-192.
- Kerr, J. A. (1986). Multidimensional health locus of control adherence, and lowered diastolic blood pressure. Heart & Lung, 15(1), 87-92.

- Lau, R. R., & Ware, J. F. (1981). Retirements in the measurements of health specific locus of control beliefs. Medical Care, 19, 1147-1157.
- Levenson, H. (1981). Differentiating among internality, powerful others, and chance. In H. Lefcourt (Ed.), Research with the locus of control construct (pp. 15-63). New York: Academic Press.
- Lewis, F., Morisky, D., & Flynn, B. (1978). A test of the construct validity of health locus of control: Effects on self-reported compliance for hypertensive patients. Health Education Monographs, 6(2), 138-148.
- LoBiondo-Wood, G., & Haber, J. (1986). Nursing research: Critical appraisal and utilization. St. Louis: C. V. Mosby.
- MacGregor, G. A. (1983). Dietary sodium and potassium intake and blood pressure. Lancet, 1, 750-753.
- Malasanos, L., Barkanskas, V., Moss, M., & Stoltenberg, K. (1977). Health assessment. St. Louis: C. V. Mosby.
- McClintic, R. (1975). Physiology of the human body. New York: John Wiley & Sons.
- O'Malley, K., Judge, T., & Crooks, I. (1980). Geriatric clinical pharmacology and therapeutics. In G. S. Avery (Ed.), Drug treatment (2nd ed.). Sydney: ADIS Press.
- O'Malley, K., & O'Brien, E. (1980). Management of hypertension in the elderly. New England Journal of Medicine, 302, 1397-1405.

- Pagliaro, L., & Pagliaro, A. (1983). Pharmacologic aspects of aging. St. Louis: C. V. Mosby.
- Pender, N. J. (1985). Effects of progressive muscle relaxation training on anxiety and health locus of control among hypertensive adults. Research in Nursing and Health, 8, 67-72.
- Phares, E. J. (1968). Differential utilization of information as a function of internal-external control. Journal of Personality, 36, 649-662.
- Rotter, J. B. (1954). Social learning and clinical psychology. Englewood Cliffs, NJ: Prentice-Hall.
- Saltzer, E. B. (1978). Locus of control and intention to lose weight. Health Education Monographs, 6, 118-128.
- Seeman, M., & Evans, J. (1962). Alienation and learning in a hospital setting. American Sociological Review, 27, 772-782.
- Small, G. W., & Jarvik, L. F. (1982). The dementia syndrome. Lancet, 2, 1443-1445.
- Strickland, B. R. (1978). Internal-external expectancies and health-related behaviors. Journal of Consulting and Clinical Psychology, 46, 1192-1211.
- Wallston, K. A., & Wallston, B. S. (1982). Who is responsible for health? The construct of health locus of control. In G. Sanders & J. Suls (Eds.), Social psychology of health and illness (pp. 65-95). Hillsdale, NJ: Erlbaum.

Wallston, K. A., Wallston, B. S., & DeVellis, R. (1978).

Development of the multidimensional health locus of control (MHLC) scales. Health Education Monographs, 6, 160-170.

Wallston, K. A., Wallston, B. S., Kaplan, G. D., & Maides,

S. A. (1976). Development and validation of the health locus of control scale (HLC). Journal of Consulting and Clinical Psychology, 44, 580-585.

APPENDIX A
Agreement to Participate in Research
at San Jose State University

AGREEMENT TO PARTICIPATE IN RESEARCH

AT SAN JOSE STATE UNIVERSITY

RESPONSIBLE INVESTIGATOR; KAREN M. RUSS, RN, BSN
TITLE OF PROTOCOL: A STUDY OF ELDERLY HYPERTENSIVE CLIENTS
AND THEIR HEALTH CONTROL BELIEFS.

I have been asked to participate in a research study that is investigating the relationship between personal beliefs and blood pressure. The results of this study may further our understanding of how to treat persons with elevated blood pressures.

I understand that:

- 1) I will be asked to participate in a study conducted by Karen M. Russ. I will have my blood pressure taken on the right and left arms while seated. After the readings have been recorded, I will complete a Descriptive Data Form, Scheduled Interview, and an 18-item questionnaire. Lastly, I will have my blood pressure taken again on the right and left arms. The estimated time of the procedure is 20 minutes.
- 2) There are no possible risks in participating in this study.
- 3) There are no real benefits for me in participating in this study. All benefits are for the future.
- 4) Alternative procedures would not be advantageous to the participant.
- 5) The results from the study may be published. All information from this study will be reported in aggregate. There will be no specific reference to me. Confidentiality will be observed at all times.
- 6) The participant will not receive compensation for participating in my research project.
- 7) Any questions that I have I can call Karen M. Russ at (408) 255-8959 or Dr. Irene D. Lewis, my thesis advisor at (408) 924-3160. For questions or complaints about research subject's rights, or in the event of research-related injury, contact Serena Stanford, PhD (Associate Academic Vice President for Graduate Studies) at (408) 924-2480.
- 8) My consent is given voluntarily without being coerced; I may refuse to participate in this study or in any part of

this study, and I may withdraw at any time, without prejudice to my relations with San Jose State University.

9) I have been offered a copy of this consent form for my file.

MY SIGNATURE INDICATED THAT I HAVE READ THE INFORMATION PROVIDED ABOVE AND THAT I HAVE DECIDED TO PARTICIPATE.

DATE

SUBJECT'S SIGNATURE

INVESTIGATOR'S SIGNATURE

EXPERIMENTAL SUBJECTS

BILL OF RIGHTS

A STUDY OF ELDERLY HYPERTENSIVE CLIENTS AND
THEIR HEALTH CONTROL BELIEFS

The rights below are the rights of every person who is asked to be in a research study. As an experimental subject I have the following rights:

- 1) To be told what the study is trying to find out,
- 2) To be told what will happen to me and whether any of the procedures, drugs, or devices is different from what would be used in standard practice,
- 3) To be told about the frequent and/or important risks, side effects, or discomforts of the things that will happen to me for research purposes,
- 4) To be told if I can expect any benefit from participating and, if so, what the benefit might be,
- 5) To be told the other choices I have and how they may be better or worse than being in the study,
- 6) To be allowed to ask any questions concerning the study both before agreeing to be involved and during the course of the study,
- 7) To be told what sort of medical treatment is available if any complications arise,
- 8) To refuse to participate at all or to change my mind about participation after the study is started. This decision will not affect my right to receive the care I would receive if I were not in the study;
- 9) To receive a copy of the signed and dated consent form,
- 10) To be free of pressure when considering whether I wish to agree to be in the study.

If I have other questions I should ask the researcher. In addition, I may contact the Human Subjects Institutional Review Board, which is concerned with protection of volunteers in research projects. I may reach the committee by calling: (408) 924-1435 from 8:00 a.m. to 5:00 p.m. Monday through Friday, or by writing to the Human Subjects Institutional Review Board, San Jose State University

Foundation, One Washington Square, San Jose, CA 95192-0139.

PARTICIPANT

DATE

INVESTIGATOR OR WITNESS

APPENDIX B
Descriptive Data Form

SAN JOSE STATE UNIVERSITY
Department of Nursing

Code Number _____

Descriptive Data Form

Please take a few minutes to answer these questions: Your responses will be held in the strictest confidence. Please make a check mark next to each response.

Date: _____

Time: _____

Marital Status: married _____
single _____
widowed _____
divorced _____
separated _____

Sex: male _____
female _____

Religion: Protestant _____
Jewish _____
Catholic _____
Buddhist or other Eastern Religion _____
Other _____

Circle last grade completed:

0	1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20	

Present Occupation: _____

Income: 0 - 10,000/year _____
(range) 10,001 - 20,000 _____
20,001 - 30,000 _____
30,001 - 40,000 _____
50,001 - 60,000 _____
over 60,000 _____

Residential Status:

own home _____ other (specify) _____
rent home or apt. _____

Living Arrangement: alone _____
with family _____
with non-related people _____

Age: _____

Height: _____

Weight: _____

Frame Size Small _____ Medium _____ Large _____

APPENDIX C
Schedule Interview

Code Number

Schedule Interview

1. Do you have high blood pressure?
2. Have you ever had high blood pressure?
3. Are you currently taking high blood pressure medications?
4. Are you currently taking any medications for the treatment of rheumatic disease, degenerative joint disease, osteoarthritis or acute musculoskeletal problems (nonsteroidal anti-inflammatory drugs) (NSAIDS)?
5. Have you ever had a diagnosis of kidney disease?
6. Have you ever had a stroke (cardiovascular accident)?
7. Have you ever had a diagnosis of an endocrine disorder such as diabetes or hyperthyroidism?
8. Do you smoke cigarettes? Yes/No
How many packs per day did (do) you smoke? _____
years smoked _____

APPENDIX D

Multidimensional Health Locus
of Control (MHLC) Scales

PLEASE NOTE:

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.

These consist of pages:

63-65

U·M·I

APPENDIX E
Blood Pressure Recording Form

Blood Pressure Recording Form

Subject # _____

Date: _____

Time: _____

	(R) arm	(L) arm
Sitting	_____	_____

Date: _____

Time: _____

	(R) arm	(L) arm
Sitting	_____	_____

APPENDIX F
Letter of Permission

VANDERBILT UNIVERSITY

NASHVILLE, TENNESSEE 37240

TELEPHONE (615) 322-7311

Health Care Research Project • School of Nursing • Direct phone 322-2520

To:

From: Kenneth A. Wallston, Ph.D.

Thank you for your interest in the Health Locus of Control Scales. Please excuse this form response, but I have so many inquiries requiring similar replies that I have found this to be an efficient means of disseminating information.

You have my permission to utilize Form A or B of the MHLC scales in any health related research you are doing. My only request is that you keep me informed of any results you obtain using the scales. In that way I hope to continue to serve as a clearinghouse for information about the scales.

I recommend using the more recently developed Multidimensional Health Locus of Control Scales (Health Education Monographs, 6, Spring, 1978, pp. 160-170) over the earlier, unidimensional HLC Scale (Journal of Consulting and Clinical Psychology, 1976, 44, 580-585), since the newer measures are psychometrically superior and potentially more useful.

We are currently in the process of developing Form C of the MHLC scales, an instrument which can easily be made specific to any existing medically-related condition which your subjects might have (e.g., diabetes, cancer, high blood pressure, migraine headaches, arthritis, chemical dependencies, etc.) It is much too early to make Form C generally available to the public, but we are looking for a few investigators who might want to help us establish the reliability and validity of this new instrument. If you think your study can help in this regard, please contact me with details.

If you wish to be added to our mailing list or want additional material, please complete the enclosed interest questionnaire and we will be happy to send it to you. I hope to periodically send updated information related to the use of these scales as it becomes available.

If you have more specific questions, don't hesitate to contact me. Please remember to send me information on any use you make of these scales. I have included a usage questionnaire to facilitate your doing so. I look forward to hearing from you.

APPENDIX G
Facility Permission Form

Ms. Diane Abihider
Senior Recreation Coordinator
266 Escuela Avenue
P.O. Box 7540
Mountain View, CA 94039

Ms. Karen Russ
22473 Riverside Drive
Cupertino, CA 95014

May 4, 1988

Dear Ms. Russ,

I have read your graduate thesis proposal entitled, A Study of Elderly Hypertensive Clients and their Health Control Beliefs. Permission has been granted to carry out the project at the Mountain View Senior Center.

I understand that participation in the research study is completely voluntary, that the anonymity of the facility and the seniors will be maintained and that we may have access to the results of the research study on request.

Sincerely,

Diane Abihider

Diane Abihider
Senior Recreation Coordinator

Ms. Nancy L. McGinnis
Senior Coordinator
Cupertino Senior Center
21251 Stevens Creek Blvd.
Cupertino, CA 95014

Ms. Karen Russ
22473 Riverside Drive
Cupertino, CA 95014

June 27, 1988

Dear Ms. Russ,

I have read your graduate thesis proposal entitled, A Study of Elderly Hypertensive Clients and their Health Control Beliefs. Permission has been granted to conduct a pilot study of your thesis at the Cupertino Senior Center.

I understand that participation in the research study is completely voluntary, that the anonymity of the facility and the seniors will be maintained and that we may have access to the results of the research study on request.

Sincerely,

Nancy McGinnis
Senior Coordinator