2005

Discovering the barriers to health-promoting lifestyles among Appalachian veterans with uncontrolled hypertension

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DISCOVERING THE BARRIERS TO HEALTH-PROMOTING LIFESTYLES AMONG APPALACHIAN VETERANS WITH UNCONTROLLED HYPERTENSION

Thesis submitted to
The Graduate College of
Marshall University

In partial fulfillment of the
Requirements for the degree of
Master of Science in Nursing
Family Nurse Practitioner Program

By

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May 2005

Abstract

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Introduction: The purpose of this study was to discover the barriers to health promoting lifestyles among the Appalachian veteran population with uncontrolled hypertension.

Design: A quantitative research study was conducted over five months using a non-experimental, descriptive research design. Pender's Health Promotion Model served as the study's framework. Subjects were recruited from a primary care setting through advertisement within the hospital. A convenience sample of thirty-two subjects was obtained.

Method: The Health Promotion Lifestyle Profile (HPLP) II survey assessed for barriers to controlled hypertension in the following areas: health-promoting lifestyle, health responsibility, stress management, spiritual growth, interpersonal relationships, nutrition, and physical activity.

Findings: Moderately significant correlations were noted between uncontrolled hypertension and four out of six health promoting dimensions.

Conclusion: An elevation in systolic blood pressure correlated to poor interpersonal relationships, spiritual growth, and health responsibility was correlated to elevated systolic pressure. Ineffective stress management was found to elevate systolic and diastolic blood pressures.

Acknowledgements

First of all, I wish to thank my family and friends for their support and encouragement during my educational endeavors. My family has sacrificed throughout the years to help me reach my career goals. I would like to thank my mom and dad, Richard & Dianne Davis, for encouraging me to follow my dreams, for believing in my potential, and for supporting my decisions. Without my mom and dad, I would not be where I am at today. Thank you, mom, for encouraging me to continue, lifting my spirits during stressful times, being a wonderful role model, and always being the greatest mother a child could ever ask for. I also want to thank my aunt and uncle, Lola & David Jobe, for loving me like a daughter and always being there during good and bad times. I also would like to acknowledge my husband, Stacy Edward Porter, for his love, patience, and encouragement during my graduate studies. Stacy, you are the love of my life and my best friend. I would also like to thank and acknowledge my friend and mentor, Susan Imes. From the beginning for my educational pursuit, Susan has been through several hardships with me. Thank you, Susan, for teaching me how to be a “good” nurse. Finally, I would like to acknowledge my thesis committee, Dr. Stotts, Dr. Stanley, & Dr. Terry. Thank you for your expertise and supervision. Special thanks to the Primary Care Nurses at the VA Medical Center, especially Donna Arthur, for helping to organize this project and making it so successful.

Dedication

I dedicate my research and nursing career to the Veterans of the United States of America. I have worked with the Veterans Health Administration for seven years, which has been my entire nursing career. As a child, I learned to show respect and to appreciate the veterans of our country. Throughout my childhood, I volunteered to help the American Legion improve the lives of many veterans. I helped the local veteran nursing homes by delivering food, supplies, and fruit baskets. I also participated in all the holiday activities that honored our local veterans. My grandfathers and great-grandfathers were all military men and served bravely during war times. I feel honored and privileged to be a VA Registered Nurse. To be able to serve the veterans of our country is truly a wonderful and rewarding experience.

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Discovering the Barriers to Health Promoting Lifestyles of Appalachian Veterans with Uncontrolled Hypertension

Chapter I

Introduction

In the United States, one out of every four adults is diagnosed with hypertension (>140/90 mm Hg or has been on an antihypertensive medication) (Burt et al., 1995). Hypertension, the second most frequent reason for an outpatient physician visit in the United States, accounts for 30 million out of 77 million clinic visits per year (i.e., 39%) (McCaig, 1999). According to a report by the Morbidity and Mortality Weekly Report (MMWR) (2003), West Virginia is among the top 17 states with individuals who are diagnosed with hypertension.

Uncontrolled high blood pressure leads to significant morbidity, such as heart disease, strokes, and congestive heart disease (National Heart, Lung, and Blood Institute, 2002). West Virginia Healthy People 2010 (2001) states, "Heart disease continues to be the leading cause of death in both the United States and West Virginia, while stroke continues as the third leading cause of death," and "together they account for approximately 40% of all deaths" (para. 2).

In 1999, the Department of Veterans Affairs (VA) decided to focus on how to more effectively control hypertension after a study found that only 25% of hypertensive veterans were adequately controlled, which is similar to the national percentage (Berlowitz et al., 1998). Controlling hypertension and decreasing co-morbidities may begin by assessing the lifestyles of these veterans. Pender, Murdaugh, and Parsons (2002) state, "Increasing evidence indicates that there is a great deal that individuals can

do to maintain and enhance their well-being and prevent the early stages of disabling health problems by engaging in a health-promoting lifestyle" (p. 133).

By assessing the lifestyles of veterans with uncontrolled hypertension, the issues, which inhibit controlled hypertension, may be discovered. This discovery may then assist healthcare professionals to devise a health promoting lifestyle plan for future control of hypertension. The purpose of this study is to discover the barriers to a health-promoting lifestyle among veterans with uncontrolled hypertension in a Veterans Affairs Medical Center's outpatient clinic in the heart of Appalachia.

Background

The National Health and Nutrition Examination Surveys (NHANES) were conducted by the National Center for Health Statistics, Center for Disease Control, and Prevention (NCHS-CDCP), and have provided a substantial database about the civilian non-institutionalized population in the United States (Burt et al., 1995). The NCHS-CDCP (CDC, 2002) conducted four separate surveys from 1960 to 1991 on the trends in blood pressure distribution and hypertension prevalence, along with the percentage of the population with hypertension who were aware of the disease, were treated with medications, and were controlled with medications. The 1960-1991 surveys concluded high blood pressure measurements and the prevalence of hypertension were approaching a downward trend, and the rates of awareness, treatment, and control had increased (Burt et al., 1995). The most recent survey, NHANES III (1988-1991), reported 32% of untreated hypertensive individuals are unaware of their condition, 15% are aware of the diagnosis and receive no treatment, 26% are treated and uncontrolled, and 27% are

treated and controlled (Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, 1997*).* Nevertheless, hypertension has remained the reason for many outpatient doctor visits in the United States and has added up to 30 million visits per year (McCraig, 1999).

The VA has not been immune to the prevalence of hypertension among its veteran population. Perry, Freis, and Frohlich (2000) discussed the Department of VA Hypertension Meeting of 1999, which compared the NHANES III findings to the study by Berlowitz et al. (1998). The meeting attempted to explore the disparities between the general population and the veteran population. The conference resulted from "concern that hypertensive veterans were not receiving optimal antihypertensive treatment" and "was fostered by a report in the *New England Journal of Medicine* by Berlowitz et al., who examined the records of 800 hypertensive veterans treated by primary care physicians at 5 New England VA outpatient clinics between 1990 and 1995" (para. 1).

The study by Berlowitz et al. (1998) revealed 25% of veterans examined and treated in the VA primary care clinics had reached the recommend blood pressure goal set forth by the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. Perry, Freis, and Frohlich (2000) stated, "… the percentage of veterans whose blood pressures were controlled in this level approximated what the third National Health and Nutrition Examination Survey (NHANES III) reported for the United States as a whole" (para. 3). When comparing the study results of Berlowitz et al. (1998) and the NHANES surveys, only 25% of the veteran subpopulation maintained blood pressures below 140/90, which was similar to the NHANES III survey's 27% of the national population with blood pressures measuring below 140/90.

With the veteran percentage of 25% being similar to the national percentage of 27%, this information sparked the VA to improve the management of hypertension under the direction of Dr. Kiser, Undersecretary of Health for the VA (Burt et al., 1995; Perry, Freis, & Frohlich, 2000).

Significance

According to the U. S. Department of Health and Human Services (2000) *Healthy People 2010* (as cited by Pender, Murdaugh, and Parsons, 2002), unhealthy lifestyles were responsible for 55% of mortality, whereas environment was 25%, and genetic factors were 20%. Hypertension has been listed as one of the diseases responsible for mortality in the United States. According to the American Heart Association (2004), unhealthy lifestyles contributed to the development of hypertension. Hypertension has affected thousands of Americans. In 2002, 49,707 people died from hypertension. In the same year, hypertension was listed as a primary or contributing cause of death in about 261, 000 Americans. By discovering the barriers to controlled hypertension, nursing professionals have the ammunition to influence healthy lifestyle choices, lower the incidence of hypertension, and improve health profiles across the nation.

There is evidence that supports the beneficial effects of healthy lifestyle modifications in preventing and managing hypertension (Dickey & Janick, 2001). Lifestyle risks factors that are important in the prevention or management of hypertension are obesity, excessive intake of salt and potassium, alcohol consumption, sedentary lifestyle, psychological stress, and tobacco use (Dickey & Janick). To prevent or manage hypertension, lifestyle changes should be applied and encouraged by healthcare professionals. Lifestyle changes are recommended to be part of the initial nursing

intervention and an integral part of the healthcare teams' overall approach to hypertension. Further research on barriers to a health promoting lifestyle may promote more lifestyle counseling by nurses, encourage early intervention for uncontrolled hypertension by healthcare professionals, and increase lifestyle changes among patients with uncontrolled hypertension.

This research proposal is significant to nursing because the cost of diseases, such as hypertension, is affecting the United States healthcare system every year. Hypertension, along with other obesity-related diseases (heart disease, stroke, cancer, and diabetes), is costing the United States $100 billon dollars every year (National Heart, Lung, and Blood Institute (NHLBI) *Healthy People 2010*, 2000). According to NHLBI *Healthy People 2010*, most of the factors that contribute to these diseases are controllable through diet, medications, exercise, and not smoking or drinking alcohol.

Problem Statement

The purpose of this study was to discover the barriers to a health promoting lifestyle among the Appalachian veteran population with uncontrolled hypertension.

Operational Definitions

Target Population

The population of interest was veterans with a diagnosis of hypertension, who have uncontrolled with a systolic blood pressure greater than or equal to 140 mm Hg and/or a diastolic blood pressure greater than or equal to 90 mm Hg. Fewer than 25% of hypertensive veterans were considered well-controlled with blood pressure less than 140/90mm Hg, and 46% of hypertensive veterans were equal to or greater than 160/90 mm Hg (Berlowitz et. al, 1998). As a whole, the studies reported that 29% of individuals

in the United States were controlled with blood pressures below 140/90 (Burt et al., 1995).

Sample Population

The population of interest for this study was Appalachian veterans who were scheduled for a routine primary care appointment, were diagnosed with hypertension and/or prescribed an antihypertensive medication, and were uncontrolled with a systolic blood pressure greater than or equal to 140 mm Hg and/or a diastolic blood pressure greater than or equal to 90 mm Hg. The subjects were patients from a primary care clinic located in an Appalachian Veterans Affairs Medical Center. Appalachian subjects were post-active duty military veterans who lived in the Appalachia geographical area.

Health-Promoting Lifestyle

Health-Promoting Lifestyle was considered a positive approach to living one's life that embraced behaviors, beliefs, and values which enhanced and facilitated actualization and a sense of well being (Pender, Murdaugh, & Parsons, 2002) and was measured by the Health- Promoting Lifestyle Profile II (HPLP II) (Pender, Murdaugh, & Parsons).

Barriers

Barriers were objects or individuals that inhibited a process or event from occurring (Pender, Murdaugh, & Parsons, 2002).

Perceived barriers of action.

Perceived barriers of action were anticipated barriers to health-promoting behavior (Pender, Murdaugh, & Parsons, 2002). Survey questions from the HPLP II identified and measured the barriers to a health promoting lifestyle. A response of never

or sometimes to the survey questions of the HPLPII was categorized as a perceived barrier of action.

Hypertension

Hypertension was defined as a chronic, common, asymptomatic to symptomatic, disorder characterized by a persistently elevated blood pressure exceeding 140/90 mm Hg (Mosby, 1994). Hypertension has the potential to be uncontrolled (the systolic blood pressure 140 mm Hg or greater and/or the diastolic blood pressure is 90mm Hg or greater) or controlled (blood pressure below 140/90 mm Hg due to antihypertensive medication, diet, or exercise).

Uncontrolled hypertension.

Uncontrolled hypertension was defined as a systolic blood pressure greater than or equal to 140 mmHg and/or a diastolic blood pressure greater than or equal to 90mmHg. For purposes of this study, uncontrolled hypertension was determined by the average blood pressure measurement (current reading and the last documented blood pressure in the computerized medical record taken in the last year) and was categorized as uncontrolled if the systolic blood pressure was 140 mm Hg or greater and/or the diastolic blood pressure was 90 mm Hg or greater. The researcher measured the subject's blood pressure with an aneroid sphygmomanometer and stethoscope using the left arm unless medically contradicted.

Importance of Study

Nursing Practice

According to the American Heart Association (2004), unhealthy lifestyles contributed to the development of hypertension. Hypertension has affected thousands of

Americans each year. In 2002, 49,707 people died from hypertension. This study has importance to the nursing practice, because nurses need to know more about the relationship between health-promotion barriers and hypertension.

By discovering the barriers, nurses can help patients decrease or eliminate the barriers to controlling elevated blood pressure. With increased control over hypertension, other incidences of diseases, such as heart and kidney disease, may decrease. By addressing the barriers, nursing could decrease the mortality rate and incidence of organ damage.

Nursing Education

Research has shown that the lack of patient education correlates with elevated blood pressures (Knight et al., 2001; Weir et al. 2000; Hyman & Pavlik, 2000; & Stockwell et al., 1994). This study assesses the patient's knowledge base using the Health Promotion Model by Pender (Pender, Murdaugh, & Parsons, 2002). The results of this study may encourage nurses to educate patients on health-promotion. This study may provide key topics, such as psychosocial problems, for nurses to focus on during educational sessions. The patient may need education on coping skills or a referral to agencies that help with these particular problems.

Summary

While hypertension has been an issue for the whole country, hypertension has remained a concern for the United States veterans (Berlowitz et. al, 1998). Many veterans have lived with uncontrolled hypertension and have developed organ damage. The purpose of this study was to discover the barriers to controlled hypertension among Appalachian veterans. The researcher hoped the results of this study would provide

significant information on health-promotion barriers that could be used by health professionals to help patients lower or control elevated blood pressures.

Chapter II

Introduction

The following section included the literature review and the theoretical framework. The literature review provided information to support this purpose of this study and gave a history of the research studies conducted prior to this study. The nursing theory served as a framework for this study.

Literature Review

Stockwell, Madhavan, Cohen, Gibson, and Alderson (1994) stated, “this study was undertaken to assess the current extent of awareness, treatment, and control of hypertension and to identify the determinants of these outcomes in a population of unionized health care workers” (p. 1768). The study demonstrated, in the absence of financial barriers, hypertensive treatment has poor outcomes and improved access to care does not improve blood pressure control. The 1394 health care workers volunteered participation in a blood pressure screening at four different sites.

The inclusion criteria for the potential subjects were as follows: had to be union members, have eligibility for full health benefits, have high blood pressure by either diastolic blood pressure of 90 mm Hg or higher and/or a systolic blood pressure of 140 mmHg or higher, and documentation in the union records of a prescribed antihypertensive medication (or a diagnosis of hypertension within a year of the screening) (Stockwell et al., 1994). Information about sex, race, age, height, weight, years of school, and martial status was obtained at the screening. Union records were used to

assess the antihypertensive medication use, and the usage was determined by the days the medication was provided, not by the number of pills.

According to Stockwell, et al. (1994), only 409 out of 1394 employees had hypertension and met all the requirements for the study. The study found 409 patients with hypertension, 289 (71%) were aware of the hypertension diagnosis, 201 (49%) had treatment for hypertension, and 51% had a blood pressure of less than 140/90 mm Hg. Stockwell, et al. concluded those subjects who were more aware of their hypertension diagnosis and treatment were females, blacks, older in age, and obese. Although the aware group had more doctor visits each year than the unaware group, the difference was due to the aware group being treated for hypertension. Therefore, when the treated group was excluded, the aware group did not have more doctor visits than the unaware group. The increased number of doctor visits was not the reason for greater awareness.

The controlled group had a significantly larger number of antihypertensive days than the uncontrolled group. Subjects with 90 drug-days are 12% controlled, and subjects with 270 or more drug-days were 33% controlled. Out of 201 employees treated for hypertension, 47% was taking more than one antihypertensive medication, and 78% received at least one of the newer generation medications, such as an ACE inhibitor (Stockwell, et al., 1994). Nevertheless, no single type of medication, alone or in combination, created a significant improved rate of control. Also, an increased number of doctor visits per year was not correlated with control or associated with the number of drug days.

Stockwell, et al. (1994), using a logistic regression model that tested for the independent effect of each variable on awareness, discovered that older, more obese, and

African American employees were more aware of their hypertension. With treatment as the outcome variable, older, more obese employees, and individuals with more doctor visits were more likely to be treated for hypertension. The patient's sex and the number of anti-hypertensive drug days were associated with blood pressure control.

When evaluating the effect of race on awareness and blood pressures, Hispanics had a high rate of awareness, but low rates of control and treatment (Stockwell, et al. 1994). White patients in the controlled group were 25.5%, and uncontrolled whites were 20.0%. The control ratio for whites was 1.28. For Hispanics, the control ratio was 0.35. In other words, the Non-Hispanic Whites were over represented in the outcome group.

Stockwell, et al. (1994) summarized that 80% or more of insured health care workers failed to achieve blood pressure control, even though the workers had full coverage and access. A large fraction of the subjects, unaware or aware and treated, remained uncontrolled. Even though the older and more obese subjects were aware and treated, these patients, once in treatment, were no more controlled than before treatment. Women were no more aware or treated than men, but once in treatment, more likely to be controlled. Hispanics were aware of their hypertension diagnosis, but less likely to be treated or controlled. Stockwell, et al. (1994) noted the following limitations: blood pressure measurement at only one encounter, lack of knowledge about specific content of the doctor visits, incomplete knowledge of the purpose of their treatments, pharmacy records from the union as the only source for actual pill consumption, and small numbers of subjects within the categories.

Shaw, Anderson, Maloney, Jay, and Fagan (1995) explored the factors associated with the noncompliance of patients taking antihypertensive medications. A pilot study

was conducted at an ambulatory clinic and a random sample of 243 subjects was asked to complete a telephone questionnaire. The questionnaire determined the factors of noncompliance and the frequency of noncompliance among hypertensive patients. Of the 243 patients, 98 completed the telephone questionnaire. The sample population was mostly female, older in age with less than a high school education, and an income below $10,000 a year. However, an even distribution among races was noted in the study. When assessing noncompliance, 70% claimed to never have missed a medication. The percentage of subjects who had intentionally missed a dose was 33%. The most common reason for subjects (44%) was the difficulty of refilling medications because of forgetfulness, inconvenience, or transportation. The additional causes were: the cost (lack of money) (25%), side effects (25%), and inconvenience (22%) (e.g. left medications at home when gone 24 hours or longer). Forty-six percent of patients had either missed a dose monthly, weekly, purposely, or a combination of any three.

According to Shaw, et al. (1995), several factors were associated with noncompliance; these factors included younger age groups, being employed, levels of concern over missed doses, and using home remedies. In other words, the rate of noncompliance increased with a decrease in age and was higher among the unemployed (38% of employed subjects missed a dose weekly compared to the 17% of the unemployed that missed a dose weekly). Various factors were not significant with noncompliance: demographic variables, presence of drug allergies, total number of medications the patients took, length of time on medication, length of time since doctor visits, living arrangements, presence of tricks used as reminders, presence of a person to

remind patient to take medications, subject's knowledge of side effects, and the type of antihypertensive medications.

Shaw, et al. (1995) did not describe the limitations of their study. However, one limitation was the study population mainly consisted of an older group with less than a high school education, and there were three and a half times more females than males. The study would have had more cross-demographic applicability if it had been designed to include more young males, individuals with a college education, or higher income levels.

A study by Richmond, Kehoe, Heather, Wodak, and Webster (1996) examined the prevalence of smoking, alcohol use, exercising, dieting, and the patients' perceptions about the practitioners' role in advising on healthier lifestyles. The researchers implemented a self -administered questionnaire among 18 to 70 year olds (13,017 subjects) who were visiting at least one out of 119 practitioners in Sydney, Australia over a course of six to eight weeks. The results revealed: women dieted more than men to lose weight, 35% of men and 29% of women drank alcohol at levels considered harmful or hazardous, and over half of the men and women exercised regularly. More young people smoked cigarettes, drank alcohol, dieted to lose weight, and exercised than any other age group. Smoking among young adults exceeded the general population. In the study, most patients thought general practitioners should be concerned about their lifestyle risks, but few patients received advice about their health risk behaviors. The study suggested general practitioners could reduce diseases by advising on lifestyle risk factors.

Berlowitz, et al. (1998) evaluated, "the treatment of hypertension in patients with access to physicians and medications through the Department of Veterans Affairs as a

means of determining ways in which such care may be improved and reducing the number of patients with suboptimal control of blood pressure" (para. 2). The authors studied 800 hypertensive men who were receiving regular outpatient care in five Veterans Affairs sites in New England. The patients were identified by at least one visit (the index visit) to general medicine or medical specialty during a six-month period (from January 1, 1990 to January 1, 1993), and then another outcome visit in 1 ½ to 2 ½ years after the index visit. After these requirements, the patients needed at least one visit in between the index and outcome visits. The patients were randomly selected from the eligible patients stratified according to the site and must have visited a medical physician during visits. Berlowitz et al. obtained clinical data, such as dates of visits, reasons for visits, types of providers, symptoms, physical examination findings, diagnoses, test results, and medications prescribed or changed from the index visit to the outcome visit, through a medical chart review. Four blood pressure measurements were recorded during each visit. The study used a recursive partitioning, known as classification trees, to model changes in therapy.

Most of the 800 male hypertensive veterans were elderly, white, had many co-morbidities, and uncontrolled blood pressures. The mean systolic blood pressure at the index visit was 146.2 +/- 18.8 mm/Hg, and revealed no significant improvement with blood pressure (145.6 +/- 19.3 mm/Hg) after two years of care. The diastolic blood pressure decreased from 84.3 +/- 10.3 mm Hg at index visit to 82.6 +/- 10.4 mm/Hg at the outcome visit two years later. Patients with blood pressure above 160/90 decreased during this period, but remained high (from 46.3% to 39.4 %).

Berlowitz, et al. (1998) determined that patients had poor control of blood pressure, despite repeated visits to clinics. The degree of blood pressure control influenced the number of days between clinic visits. The medications were increased by healthcare providers only 6.7 % of the visits and increased by healthcare providers only 11.2 % with the visit and a blood pressure measurement.

Factors associated with increase in therapy (i.e., higher dosage or additional medications) were an increase in the levels of systolic and diastolic blood pressures during the visit, changes in therapy at the preceding visit, the presence of coronary heart disease, and a scheduled visit (Berlowitz, et al., 1998). The characteristics to be considered in managing hypertension were age, cardiovascular risk factors, and presence of late complications of hypertension. The following coexisting conditions existed in 800 hypertensive men: diabetes 34%, hyperlipidemia 26%, coronary heart disease 37%, and cerebrovascular disease 11%. The study showed uncontrolled hypertension patients were not being treated aggressively enough, and the controlled hypertensive patients were receiving intensive therapy. Antihypertensive medications were only increased one-fourth of the time during visits for uncontrolled high blood pressures.

Berlowitz, et al. (1998) recommended that the outcome improvements for hypertensive veteran patients should be focused more on the health care process, instead of focusing on access to care and noncompliance. The study discovered providers of healthcare frequently did not increase an antihypertensive dose or try new treatments with uncontrolled hypertensive patients. The authors also recommended providers assess the patient’s blood pressures across several visits before changing the medical regimen.

Changes in performance and the processes of care were recommended for improvement to reduce the number of patients with uncontrolled blood pressures.

Although the study results were similar to the results of other studies with different populations, the results of this study were based on the veteran population, which may not be generalized or utilizable for other populations. Another limitation was the model used to predict medical therapy changes had to be validated before using the model in other settings. One problem noted by the authors was health care professionals were not recording compliance in the medical charts for future research opportunities. Compliance or adherence among patients with hypertension is significant because of insufficient research available on the topic.

Weir, Maibach, Bakis, Black, Chawla, Messerli, Neutel, and Weber (2000) contacted 727 subjects from previous 1995 and 1996 studies to examine the co-variation in medications, health lifestyles beliefs, and health behaviors among subjects with hypertension to create and identify subgroups. A sample of 727 subjects diagnosed with hypertension was interviewed by telephone. The 15 minute telephone survey included questions from seven domains that assessed the attitudes and behaviors relevant to the clinical management of hypertension: time since diagnosis, current and prior medication regimens prescribed, side effects associated with current medication and switching medication, preventive measures (medication, diet, exercise), confidence in meeting goals, knowledge of hypertension risks, and beliefs about the importance of medication and lifestyle regimens for hypertension. The subjects were asked about their beliefs and behaviors regarding hypertension management.

Weir et al. (2000) used descriptive statistics and cluster analysis to identify four patient types. The following demographics were similar to the United States adult population: martial status, race, and income. The subjects were older than the general population, retired (35% of subjects were retired and 14% of general population retired), and slightly more educated than the general population. The study concluded the following: 57% of subjects diagnosed with hypertension in the last 10 years, mean self-reported blood pressure reading was 139/82 mm Hg, older subjects had a higher systolic and diastolic blood pressures, 60% of subjects have blood pressure checked every 3 months or more by a healthcare professional (older and female subjects more often blood pressure checks), less than half of subjects self-measure blood pressure, 71% were taking prescribed antihypertensive medications, 59% reported making lifestyle changes, 88% had tried lifestyle changes, 32% implemented lifestyle changes before medications, 87% felt very knowledgeable about hypertension and 77% needed more information (99% knew hypertension caused strokes and 87% knew hypertension caused heart attacks), 87% stated the physician discussed hypertension, 53% did not feel different when taking blood pressure medication and 14% felt worse after taking medication, 97% took medications as prescribed, 11% had difficulty remembering medication, 33% reported fatigue as a side effect (51% ankle swelling, 42% cough, 58% dizziness, and 60% rash), 96% believed proper diet controlled blood pressure and 93% believed regular exercise controlled blood pressure, 60% of males compared to 49% females felt exercise was easy to do, higher educated subjects felt following exercise and diet was hard to follow, 51% in last 5 years switched medication due to side effects, 12% stopped taking medications

for blood pressure without consulting with physician, and 53% of subjects forgot to take medications.

Weir et al. (2000) divided the data by cluster analysis into subgroups, which were labeled: A, B, C, and D. The following results of the subgroups were:

> Group A (39% of sample) used a mixture of medications and lifestyle regimens to control blood pressure. Group A had the following results: were the best educated, most ethnically diverse, strived to take care of health and control hypertension through medications and a healthy lifestyle, more likely than other groups to maintain proper diet and exercise, less likely to smoke or excessively drink alcohol, more likely to rate health excellent, and most knowledgeable than others groups about hypertension. Group A had lower diastolic readings and the lowest body mass index (BMI).
>
> Group B (16% of sample) were mostly to depend on medication and have an increased adherence rate, but also have high rates of smoking (29%), alcohol use (104 times per year), less likely to exercise, had more women than men in group, believe strongly in not taking harmful medications, more likely than any other group to receive medication, least likely to report problems with taking their medications, less likely than group A to use other healthy behaviors to control blood pressure, average in eating proper diet, less likely to exercise, less confidence in the ability to exercise or lose weight, and use alcohol more frequently than group A or C.

Group C (22% of sample) had more women than men, had the highest BMI among groups (half of group C had high risk BMI) and the lowest rate of control, compared to groups A or B. Group C was similar to group B in that control and lack of exercise were important problems and had little confidence about overcoming the problems. Group C also was more likely to forget medications, and had the lowest rate of alcohol and tobacco use.

Group D (23% of sample) was mostly male, younger than other groups, lowest knowledge scores about hypertension, higher systolic blood pressure readings than other groups, least likely to be afraid of consequences of not controlling blood pressure, least likely to believe not taking blood pressure medications was a threat, least involved in medical therapy, fewer members receiving medications, more likely to discontinue medications without physician advise, less likely than other groups to believe in the value of controlling hypertension, less likely to watch diet (29%), less likely to avoid bad foods, less confidence in ability to eat low fat foods for at least one month, and most likely to frequently smoke or drink alcohol than group C.

Weir et al. (2000) indicated in this study that the four subgroups, diagnosed with hypertension, varied significantly in their medical and lifestyle management of high blood pressure. The recommendations for these groups were: group A needed positive reinforcement in their accomplishments and more aggressive in health lifestyle goals; group B could benefit from more aggressive medical management (encouraging the

subjects to quit smoking); and group C would gain confidence in managing hypertension through empathetic counseling that focuses on a simple medication and lifestyle self-management system with more frequent office visits. Group D, being the most challenging, would benefit from the following: empathetic education, fear arousal, maintaining the focus on keeping them in care until priorities change, creating a system that makes taking medications easier, and increasing the frequency of the health provider visits.

Weir et al (2000) had limitations to their study. The research was based mainly on self-report, which cannot be validated. The researchers recommended some verification of self-reported data in future studies. The study instrument had no reliability coefficient reported in the study. The sample was not representative of the general population, as evidenced by the sample being older and retired.

Hyman and Pavlik (2001) studied data from the NHANES III study and interviewed subjects in hopes of finding the access and use of health care in controlling hypertension. The study compared the actual blood pressures of individuals who were unaware of their hypertension diagnosis, were aware of their condition but not receiving treatment, had treatment but not controlled, and had hypertension but was controlled. The variables of interest were socio-demographic factors, factors related to health care access, and the use of health care. Interviews were conducted to gain additional data. Hyman and Pavlik state:

> In addition, we assessed the effect of socio-demographic characteristics and variations in access to and the use of health care on the control of hypertension and determined the population attributable risk associated with the variables that were found to be independently predictive of an increased likelihood of uncontrolled hypertension. We hypothesized that most cases of uncontrolled

> hypertension in the United States consist of mild elevations in systolic pressure in patients receiving regular medical care (para. 3).

The NHANES III study measured the blood pressures of 16,095 adults, who were 25 years old or older and blood pressures values with antihypertensive medications were known (Hyman & Pavlik, 2001). The United States population, as a whole, was based on the NHANES III sample. Of the 41.9 million individuals with hypertension, 31 percent were unaware of the diagnosis, 17% were aware and not treated, 29% were treated and uncontrolled, and 23 % were taking medications and had controlled blood pressures. Of the people treated, the 25 to 44 year olds were 65% of the controlled, 52% were 45 to 65 year olds, and 34% of those 65 years old or older were controlled. The results showed non-Hispanic blacks had a higher percentage of hypertension and were unaware of the condition when compared to the non-Hispanic whites. Mexican Americans had a lower prevalence of hypertension than both groups.

Over 75 percent of the subjects who were either unaware of hypertension or uncontrolled and treated, as well as those aware and untreated, had a diastolic blood pressure less than 90mm Hg (Hyman & Pavlik, 2001). The 45 to 64 year old subjects and the 65 year old or older subjects were dominant for having an elevation in systolic blood pressure and a diastolic blood pressure less than 90mm Hg. The youngest group's diastolic pressure was equal to or greater than 90mm Hg. Over 50% of the unaware patients had a diastolic pressure of less than 90 mm Hg and a systolic pressure of 140 mmHg or more.

When analyzing the access and use of healthcare, 92 percent of all patients with uncontrolled hypertension had insurance, 86 percent reported a regular source of care,

and the mean number of visits to a health care provider was 4.28 per year (Hyman & Pavlik, 2001). Patients unaware of their hypertension diagnosis used the health care system less than patients with a known diagnosis of hypertension. Patients taking medication other than for hypertension was 40 percent. The characteristics of being classified with hypertension and being unaware were: male, African American, and no primary care doctor visit in 12 months. In addition, the age of at least 65 years old was the strongest risk factor for lack of awareness.

Hyman and Pavlik (2001) discovered several observations within their study: undiagnosed hypertension and treated but uncontrolled hypertension occurred, even when patients were being seen by health care providers; lack of awareness and lack of control with treatment occurred mostly among the older population; lack of control was not only a problem for the poor, uninsured, or minorities; and the pattern of an elevation in the systolic blood pressure with a diastolic blood pressure less than 90mm Hg was not only among the elderly, but also affected the middle-age group. The authors found that patients with uncontrolled hypertension, unaware or aware and treated or untreated, were individuals with access to and receiving medical care.

One limitation was the NHANES III survey was self-report and collected by a survey staff, not the healthcare providers. Another limitation was the survey did not include the subject's medical records and one blood pressure measurement was used for the survey.

Knight, et al. (2001) explored the predictors of uncontrolled hypertension by reviewing the blood pressures, the co morbidities, and the antihypertensive medication

use of 525 hypertensive patients. The patients were identified by an antihypertensive prescription and a diagnosis of hypertension. The 535 participants belonged to one of the three healthcare settings: managed care (240), tertiary care site (44), and the Veterans' Affairs Medical Center (241). The data collected came from a medical record review and a survey. The survey inquired about age, race, gender, educational level, martial status, education by physician, use of medications reminders, health habits, knowledge of target blood pressure, and side effects. Depending on two past blood pressure measurements, the patients were classified during data analysis into the following three categories: 1) (SBP) systolic blood pressure <140 and (DBP) diastolic blood pressure <90, 2) SBP > or = 140 and <160, and/or DBP > or = 90 and <100 (stage I hypertension), and 3) SBP > or = 160 or DBP > or = 100 (stage 2 or greater hypertension).

The results of Knight et al. (2001) study were as follows: mean age of 65 years, 64% male, 89% white, 49% of managed care patients had one antihypertensive medication, mean systolic blood pressure of 143 with a diastolic of 80, 203 were normotensive patients, 257 patients had stage I hypertension, and 65 patients had stage II hypertension. The characteristics associated with poor blood pressure control by a univariate analysis and multivariate model were: older age, female, calcium channel blockers, the use of two or more blood pressure medications, the site of care, the presence of arthritis, widowed, the lack of knowledge about appropriate systolic blood pressure, and an experience with an adverse reaction from a blood pressure medication.

Treated patients who were 65 years old or older were two and a half times more likely to be hypertensive than patients less than 55 years old (Knight et al., 2001). Patients on four or more antihypertensive medications were five times more likely to

have higher blood pressure than patients on one medication. Patients who were not aware of their target blood pressure or attributed a side effect to an antihypertensive medication were twice as likely to be in a higher blood pressure category. Managed care patients were less controlled than the VAMC patients. Co-morbidity, such as angina, was associated with better blood pressure control. The study also discovered the VA hypertensive population had a higher incidence of other coexisting diseases, such as congestive heart failure, stroke, myocardial infarctions, and diabetes, than any other settings.

The study was observational which was considered a limitation to the study. Another limitation was the patients who did not participate could have affected the results. The authors believed further exploration of the predictors could identify patients that are poorly controlled or have a risk of poorly controlled blood pressures. The selection of subjects is questionable, because the authors did not specify if the population was a random or a convenience sample. Another limitation was Knight et al. did not have reliability or validity for this study.

Schuit, van Loon, Tijhuis, and Ocke (2002) performed a study to evaluate the clustering of lifestyle risk factors. The subjects, 16,789 women and men from ages 20 to 59, were asked by questionnaire about the following lifestyle risk factors: smoking, low vegetable and fruit intake, excessive alcohol use, and low physical activity. The researchers also collected data on socio-demographics and health perception. According to the study, 20% of lifestyle risk factors were among those that are unemployed, low educated, and have health deterioration. All lifestyle risks had significant clustering, except for low physical activity and high alcohol intake. One strong association was

smoking and alcohol (prevalence odds ratio: 2.38; 95% confidence interval: 2.18-2.61). Young subjects were strongest in the smoking and alcohol lifestyle risk behaviors. The study findings suggested common risk factors among adult subjects and supported the need for more research on lifestyle risk behaviors and health promotion among the adult population.

Summary

In summary, the research studies did support the concept that more research is needed on health promotion and hypertension (Schuit, van Loon, Tijhuis, & Ocke, 2002; Weir et al. 2000). This literature review of research articles, focusing mainly uncontrolled hypertension, did have similarities and discrepancies among them. Starting with the articles regarding hypertension, Stockwell, Madhavan, Cohen, Gibson, and Alderson (1994) and Hyman and Pavlik (2001) have both discovered that access to care or medical insurance does not improve control of blood pressure. Stockwell, Madhavan, Cohen, Gibson, and Alderson studied unionized workers, who had insurance and access to care and concluded that 80% of insured workers had failed to achieve blood pressure control. Hyman and Pavlik studied the NHANES III data and noted that the majority of individuals with uncontrolled hypertension have access to care. Berlowitz et al. (1998) did a study on 800 veterans who were regular customers of health care and received medications free or for a small co-payment. Nevertheless, 40% of the veterans had uncontrolled hypertension.

Stockwell et al. (1994) and Berlowitz et al. (1998) performed studies that explored the relationship between increased antihypertensive drug therapies and

controlled blood pressures. Stockwell et al. discovered that subjects with less than 90 drug-days were 12% controlled, compared to the 33% of controlled subjects with 400 or more drug days. According to the results, Berlowitz et al. stated that more intense therapies led to controlled hypertension. Although Stockwell et al. and Berlowitz et al. both advocated for more therapy in controlling hypertension, Knight et al. (2001) contradicted their results by stating that patients with 2 or more antihypertensive drugs may lead to uncontrolled hypertension. In other words, a decrease in compliance was noted when an increase in the number of medications occurred.

Knight et al. (2001) and Berlowitz et al. (1998) discussed coronary heart disease and blood pressure control. Knight et al. discovered that patients who have angina had better control of blood pressure, and felt that the reason may be due to improved compliance, more aggressive treatment, or the direct effects of cardiovascular disease. Berlowitz et al. stated coronary artery disease was a factor associated with increasing medications to control hypertension, but only in patients with blood pressure greater than 160/95 mmHg. Both Knight et al. and Berlowitz et al. used veterans in their research studies.

Knight et al. (2001) stated that females and the geriatric population were at risk for uncontrolled blood pressures. Hyman and Pavlik (2001) reported that the elderly and males were at risk for uncontrolled hypertension, but their study population was all males. Stockwell et al. (1994) stated that the elderly were more aware and treated; however, the elderly, once in treatment, was not more controlled than the other groups. “In contrast, women were no more likely than men to be aware of or treated for their

hypertension, but once in treatment, as predicted by national data, they were far more likely to achieve control" (Stockwell et al., p. 1774).

Shaw et al. (1995) discovered that 25% of patients missed a dose of their antihypertensive medication because of the side effects. Knight et al. (2001) stated one of the predictors to uncontrolled hypertension was the side effects of prescribed medications. Shaw et al. (1995) and Knight et al. (2001) both agreed that side effects to medication did affect the control of hypertension. Shaw et al. reported no association between martial status and noncompliance with taking medications, but Knight et al. stated widowed patients were at risk for uncontrolled hypertension. Also, Shaw et al. stated noncompliance increases as age decreases. However, Hyman and Pavlik (2001) stated that the elderly were more likely to be less compliant than the younger adults.

Theoretical Framework

The Health Promotion Model

The theoretical framework for this study was the Health Promotion Model. Pender, Murdaugh, and Parsons (2002) described the health promotion framework as a guide used for exploring the biopsychosocial processes, which motivated patients to participate in behaviors directed toward enhancing health. Health promotion was defined as the activities that directed the development of resources to enhance a patient's well being. The Health Promotion Model was designed to assess the areas of poor health practices or habits within the patient's environment and to devise a plan to create healthy biopsychosocial adjustments. According to Pender, Murdaugh, and Parsons, individuals in all their biopsychosocial complexity did interact with the environment, to progressively transform the environment and to be transformed over time.

The Health Promotion Model is devised of three main categories. The first category, *Individual Characteristics and Experiences,* assessed the personal characteristics and experiences that affect action (Pender, Murdaugh, & Parsons, 2002). The *Individual Characteristics and Experience*s category focused on two areas: prior-related behavior and personal factors. Prior-related behavior is proposed to have an effect on the likelihood of participating in health-promoting behaviors. Smoking is described as a prior-related behavior. The other area of this category was personal factors. Personal factors were biologic, psychologic, or sociocultural factors. Race, gender, and self-motivation were described as personal factors.

The next consecutive category of the Health Promotion Model was *Behavior-specific cognitions and Affect* (Pender, Murdaugh, and Parsons, 2002). This category contained six different areas: perceived benefits of action, perceived barriers to action, perceived self-efficacy, activity-related affect, interpersonal influences, and situational influences. The Health-Promoting Lifestyle Profile II (HPLP II) incorporated all six areas of the *Behavior-specific cognitions and Affect* category into its statements. The Health Promotion Model defined the six areas.

Perceived Benefits of Action.

Perceived benefits of action are defined as indirect or direct motivational behavior, which determined the extent of commitment to the plan by the patient (Pender, Murdaugh, & Parsons).

Perceived Barriers of Action.

Perceived barriers of action is defined as the patient's anticipated barriers to health-promoting behavior (Pender, Murdaugh, & Parsons).

Perceived Self-efficacy.

Perceived self-efficacy is defined as judgment of personal capability to create, organize, or complete a particular action (Pender, Murdaugh, & Parsons).

Activity-related Affect.

Activity-related affect is described as the subjective feelings that happened prior to, during, and following the activity (Pender, Murdaugh, & Parsons).

Interpersonal Influences.

Interpersonal influences are defined as the concerns that an individual has about others feeling, beliefs, and attitudes (Pender, Murdaugh, & Parsons).

Situational Influences.

Situational influences are described as personal perceptions about a situation that promoted or impeded behavior (Pender, Murdaugh, & Parsons).

The last category was *Behavioral Outcomes* (Pender, Murdaugh, & Parsons, 2002). This category included the last portions of the Health Promotion Model, *Commitment to a plan of action* and *Health-promoting behavior*. The *Behavioral Outcomes* incorporated the knowledge gained in the first two categories, *Individual Characteristics & Experiences* and *Behavior-Specific Cognitions & Affect*, to create a commitment to a plan of action for health-promoting behavior. Commitment to a plan of action started a behavioral event. The commitment propelled the individual into and through the behavior. Pender, Murdaugh, & Parsons (2002) stated:

> Commitment to a plan of action implies the underlying cognitive processes (1) commitment to carry out a specific action at a given time and place and with specified persons or alone, irrespective of competing preferences; and 2)

> identification of definitve strategies for eliciting, carrying out, and reinforcing the behavior (p. 73).

Once a commitment was established, the endpoint or action outcome was the positive health-promoting behavior.

The researcher planned to assess the first category of the Health Promotion Model, *Individual Characteristics & Experiences.* The researcher assessed the biological, psychological, and sociocultural factors of the subjects by using a demographic survey. Next, the researcher planned to assess the *Behavior-specific Cognitions & Affect* category, but only addressed one of the six areas from this category. The area of interest was *Perceived Barriers of Action*. The *Perceived Barriers of Action* section was the focus of this study. The HPLP II survey asked questions about perceived barriers of action to a health promoting lifestyle.

Summary

In this study, the main purpose was to discover the barriers to controlled hypertension and a health-promoting lifestyle. The framework for this study was the Health Promotion Model (Pender, Murdaugh, & Parsons, 2002). Based on the selected Health Promotion Model's categories, the researcher explored the effects of interpersonal relationships, diet, exercise, access to or use of health care, healthy behaviors, subjects' personal cognitions, and compliance to medical instruction through the HPLP II to help define the barriers to controlled blood pressure and a health promoting life. The main categories of this study were *Individual Characteristics & Experiences* and *Behavior-specific Cognitions & Affect. Individual Characteristics & Experiences* mainly focused on personal factors, such as race, employment, or age. *Behavior-specific Cognitions &*

Affect consisted of several different areas, but the main area for this study was *Perceived Barriers of Action*.

Chapter III

Introduction

The purpose of this chapter was to describe the research design, research question, setting, sample, sampling plan, instruments, data collection procedures, and analysis of data.

Methodology

Research Design.

The quantitative research study was a non-experimental, descriptive design to discover the barriers to a health promoting lifestyle among Appalachian veterans with uncontrolled hypertension. The study was guided by Pender's Health Promotion Model and organized according to the following Health Promotion Model's concepts: personal factors, prior related behaviors, and perceived barriers of action. A convenience sample from an Appalachian VA hospital was collected, based on patients volunteering to participate during their visit to the VA for a primary care clinic appointment. The primary care clinic was located inside the hospital on the ground floor.

The researcher attempted to control for external factors by performing the study in private, quiet setting containing two separate rooms (one room for the sampling process and the other room for the study). The researcher controlled the external factors (noise, privacy, and lighting) by using well-lighted and excluded rooms. The researcher attempted to control for extraneous variables (see Sampling Plan).

Data was collected from the HPLP II survey and the demographic forms; therefore, no experimental intervention was performed. The study described the population through demographics (medicine compliance, self-blood pressure monitoring, access to care, ownership of blood pressure machine, finances for medication, diagnosis of angina, race, age, occupation, sex, martial status, living arrangements, language, and education). The health promoting barriers were addressed by using the HPLP II survey. The independent variable of the study was barriers, and the dependent variable was uncontrolled hypertension. The independent variable was not manipulated, because the researcher did not want to influence the results of the study. The only Health Promotion Model concept of interest in this study was the perceived barriers of action.

Pearson's *r* was used to analyze and to correlate the blood pressure measurement averages with the HPLP II scores. The researcher used Pearson's *r* to describe the relationship between two variables, such as comparing the HPLP II scores to the average blood pressure measurements. The demographic survey helped to define the sample, and the researcher analyzed the data by calculating the mean for each topic.

Research Question

What are the barriers to a health-promoting lifestyle, as measured by the Health Promoting Lifestyle Profile II (HPLP II), among Appalachian veterans with uncontrolled hypertension?

Setting

The study took place in a VA primary care setting located in rural Appalachia. Informational posters were displayed in the main lobby of the hospital describing the blood pressure screening booth, the research project, and directions to the booth. A table

with posters boards about the research project was set up outside the study area and served as a booth for patients to visit and gain information about the study. A private section of the primary care area near the information booth was designated as the study area. The private section was two separate rooms, which provided privacy (closed doors and no windows), maintained proper lighting, and controlled environmental noise. The first room was used for the sampling plan, and the second room was a place for subjects to complete the demographic forms and HPLP II surveys. The first room included a table, two chairs, an aneroid sphygmomanometer, and a stethoscope to perform blood pressure screenings. Tables and comfortable chairs were set up in the second room. A portable computer was located in both study rooms to provide access for the researcher to patients' charts. The researcher was available to discuss the research project and answered questions for veterans who inquire about the research study.

Sample

The target population for this study was the United States' veterans enrolled at a VAMC in the Appalachia area, who had a clinical diagnosis with hypertension in their computerized medical record or were prescribed antihypertensive medication. All subjects had a scheduled primary care appointment the day of the study. The sample was one of convenience.

Sampling Plan

Phase I

Inclusion criteria.

Before starting Phase I of the sampling plan, all subjects were assessed for orientation. Subjects were oriented to person, place, and time. Legal competence for each

subject was verified by consulting with the primary care nursing staff. If the subjects had a history of dementia, Alzheimer's, diminished mental capacity, or legal incompetence, subjects were excluded from study. The researcher asked the subject, who was mentally capable and legally competent, to sign a consent form that authorized the researcher to access his or her computerized chart and to measure the subject's blood pressure. The patient also was asked to sign the VAMC consent form, which was a requirement when performing research at the medical center (see Appendix A, p. 76). The researcher reviewed the VAMC consent form beforehand with the patient. Before signing the consent forms, the subjects were asked to verbalize the key concepts of the consent to verify understanding. The potential subjects were taken to the first study room. The researcher interviewed each subject and accessed each chart in search of the inclusion and exclusion criteria (for example, the hypertension diagnosis, the antihypertensive medication, and appointments). After reviewing the literature, the subjects were considered for the study, if they:

1) Were United States veterans actively enrolled and established at the Appalachian VAMC.
2) Had a clinical diagnosis of hypertension and/or prescribed an antihypertensive medication in the computerized medical chart.
3) Were scheduled for a routine appointment with primary care the day of participation in the study.
4) Had a blood pressure measurement in the computerized medical record within the last year.
5) Were 18 years old or older.

6) Were legally competent and mentally capable to be included in study.
7) Were not symptomatic with the uncontrolled, elevated blood pressure.
8) Were not feeling ill during the day of the study.

Exclusion criteria.

The potential subjects were excluded from the study, if they met the following:

1) Were a new patient at the Appalachian VAMC.
2) Were visiting the VAMC for an appointment other than a routine primary care clinic appointment.
3) Did not have a primary care appointment scheduled for the day of participation in the study.
4) Did not have a diagnosis of hypertension in the computerized medical chart and/or a prescription for an antihypertensive medication.
5) Did not have a blood pressure measurement recorded in computerized medical record within the last year.
6) Were 17 years old or younger were excluded from study.
7) Were not mentally capable or legally competent.
8) Were an employee or student of the medical center.
9) Were symptomatic with the uncontrolled, elevated blood pressure.
10) Were feeling ill during the day of the study.

Phase II

The next phase of the sampling process was to determine whether the phase I subjects had controlled or uncontrolled hypertension. This determination was made by using the following process:

1) In Phase I of the sampling plan, the subjects, who were legally competent and mental capable, signed a consent form for the researcher to access their computerized medical chart and to have their blood pressure measured.
2) The researcher measured the subjects' blood pressure as described in the data collection section.
3) The researcher located the last blood pressure measurement on the cover sheet in the vital sign package in the computerized medical record.
4) The two blood pressure measurements were averaged and compared to the criteria for hypertension (see operational definitions section) to determine if the subjects were uncontrolled or controlled.
5) Controlled hypertension subjects were congratulated and told they were not eligible to participate in the study.
6) Uncontrolled hypertension subjects were asked to participate in the study.

Instruments/Measurements

The survey instrument for this study was the Health-Promoting Lifestyle Profile II (HPLP II), created by Walker, Sechrist, and Pender in 1987 (see Appendix C, p. 85). The HPLP was derived from the Lifestyle and Health Habits Assessment developed by Pender. After many pilot studies, the HPLP had 48 items. The HPLP has been further redefined over the last 10 years to a 52-item instrument. The latest version available was

the HPLP II, which has six dimensions to measure a health-promoting lifestyle. The six dimensions with their Cronbach's alpha were as follows: Health Responsibility (0.861), Physical Activity (0.850), Nutrition (0.800), Spiritual Growth (0.864), Interpersonal Relations (0.872), and Stress Management (0.793) (S.N.Walker, personal communication, April. 25, 2003). The total HPLP II Cronbach alpha score is 0.943.

The HPLP II was a 52-item Likert scale instrument intended to measure the major components of a healthy lifestyle. The framework of the HPLP II came from the Behavior-Specific Cognitions and Affect section of the Health Promotion Model. The authors of the HPLP II suggested using the instrument in a primary care setting to help patients develop an individualized health promotion plan. Higher scores indicated that healthy behaviors were performed more frequently than not; a lower score suggested health promoting behaviors were less frequently performed. The HPLP II helped determine whether or not subjects with uncontrolled hypertension more frequently or less frequently performed health-promoting behaviors.

Other measurements and instruments to be included in the study were a current blood pressure measurement and a demographics form (see Appendix B, p. 82). A demographics section was used to describe the sample. The researcher obtained the following information: medicine compliance, self-blood pressure monitoring, access to care, ownership of blood pressure machine, finances for medication (either no payment or $ 7 co-payment), diagnosis of angina, race, age, occupation, sex, martial status, living arrangements, language, and education. The blood pressure measurement was performed as part of the sampling process.

Data Collection

The data collection procedures were as follows:

1) Permission to conduct the research was obtained from the VAMC through the Marshall University/VAMC Institutional Review Board and the VA Research and Development Committee (see Appendix D, p. 90; see Appendix E, p. 92).
2) At the informal booth, the patients were asked if they wanted to participate in a research study.
3) Beginning of sampling phase I, the subjects signed a consent form to allow the researcher to access their chart and to measure the subject's blood pressure. The subject's also signed the VAMC required consent form. Next, subjects were taken to the first study room. The researcher accessed the chart to search for a diagnosis of hypertension, to verify a routine primary care appointment, and to confirm a prescription for an antihypertensive medication.
4) The researcher interviewed the patient and asked questions regarding the inclusion criteria. If the patient met the inclusion criteria or phase I of the sampling plan, the researcher continued to the sampling plan's phase II. If the subjects did not meet the inclusion criteria, the patient was told the reasons for not being included in the study.

The subjects, who met the inclusion criteria, were included in the Phase II of the sampling plan. Phase II of the sampling plan began with the researcher measuring the subject's blood pressure. The researcher

manually measured the subject's blood pressure in the left arm with an aneroid sphygmomanometer and stethoscope.

1. The subject's left arm was place on a table at heart level during measurement. The patients sat down in chair with feet flat on floor during all blood pressure measurements. The subjects were seated for least five minutes before taking a blood pressure measurement. The blood pressure cuff size was determined by weight. If the patient stated he or she weighs over 200 lbs, a large cuff was used. If the patient reported he or she weighed less than 200 lbs, a medium cuff was be used. If the patient was morbidly obese, an extra large cuff was used to measure blood pressure. The researcher used the left arm for all blood pressure measurements, unless medically contradicted. For instance, if the subject's left arm contained a shunt for dialysis, a PICC line for medications, or the subject's left arm has paresis from a previous stroke, the researcher used the right arm. Also, if the subject had a history of a left sided mastectomy, the subject was excluded from the study.

2. The blood pressure measurement was recorded on the subject's demographic form.
3. The researcher accessed the subject's computerized medical chart using the portable computer available in the study area. The researcher reviewed the chart for the most recent blood pressure measurement within the last year. If the subject did not have a recent blood pressure measurement within the last year, the subject was excluded from study. If the subject had a recent blood pressure measurement within the last year, the subject continued as part of the study. If the subject's current blood pressure was uncontrolled or if the subject was symptomatic with elevated blood pressure, the subject's primary care physician was notified. If the subject was symptomatic with elevated blood pressure, the patient was excluded from the study.
4. The researcher averaged the two separate blood pressure measurements. If the subject's blood pressure reading was below 140/90mm Hg, the subject was considered controlled and excluded

from the study. If the subject's systolic reading was 140 or greater systolic or diastolic reading was 90 or greater, the subject was included in the study and deemed uncontrolled. The average blood pressure measurement was compared to the Joint National Committee on prevention, detection, evaluation, and treatment of high blood pressure guidelines (1997).

5) Next, the potential participants were asked to sign an additional consent form, which discussed the research study. The researcher provided an oral presentation and written explanation about the study before the consent was signed. The information presented to the patients included: the research procedure, the purpose of the study, the risks and benefits, the expected duration of the study, and the procedures used to protect patient confidentiality. This information was included in the consent form (see Appendix A, p. 76, consent form). The patients were also informed that the study was totally voluntary and no penalty or loss of benefits occurred if patients did not wish to participate or decided not to finish the study. Before signing the consent, subjects verbalized the key concepts of the consent to verify understanding. When subjects had signed the consent for participation in the study, the subjects were taken to the second study room and given a folder, containing a demographic form and the

HPLP II survey, which was completed in the study area. If the patient was unable to read or write, the researcher conducted an interview with the patient using the survey format. Copies of both consent forms were given to the subjects so they had access to the researcher to ask questions about the study.

6) After completing the surveys, the patient returned the demographic form and HPLP II survey to the researcher.
7) Confidentiality was maintained throughout the study. No patient identifiers were located on the surveys. The blood pressure averages were written in the top left hand corner of the demographic form. All subject folders, which contain information and consent forms, were sealed after completion and stored in the researcher's file cabinet. As a requirement of the VAMC, the researcher documented the consent process in the patient's chart and the hard copies of the consents were given to the VAMC for the patient's paper record.

Summary

This was a non-experimental, descriptive research study, based on Pender's Health Promotion Model. The setting was in an Appalachian, veteran hospital. Subjects were recruited through advisement in a primary care setting. A convenience sample of 32 was obtained. The sampling and data collection processes were examined in a step-by-step fashion. The main instrument was described in detail and the Cronbach's alpha for all six dimensions of the HPLP II survey was provided.

Chapter IV

Introduction

This chapter started with a review of the data analysis & interpretation. The study results are explained in this chapter, along for reference to data tables and graphs. This chapter provided a discussion about the data results and limitations. The researcher listed possible implications for the nursing profession, education, and research. Concluding remarks are provided at the end of the chapter.

Data Analysis

The HPLP II survey's data was coded and analyzed by the researcher. The descriptive statistics were calculated using mean and standard deviation. The researcher examined the demographic survey by evaluating percentage of subjects who responded to the questions with a particular answer. Percentages also were used to evaluate the sample characteristics.

The researcher used Pearson's *r* to statistically examine the HPLP II scores and the average systolic and diastolic blood pressure measurements for correlations. The researcher had hoped to discover significant correlations between the six dimensions of the HPLP II survey and the average blood pressure measurements. The six categories are health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. The health-promoting lifestyle is the seventh category and it includes all 52 questions. Health-promoting lifestyle category contains all six dimensions under one title. By looking at the six dimensions individually, the researcher actually broke down the health-promoting lifestyle category for a more thorough analysis.

Results

The sample (N=32) consisted of veterans with a known history of uncontrolled hypertension. The subjects were scheduled for a primary care appointment the day of the study. All subjects (N=32) were male. Of this sample, eighty-one percent of the subjects (N=26) were Caucasians, sixteen percent (N=5) were African American, and three percent (N=1) were Native American.

The ages of the subjects ranged from 18 years old to 76 years old or older. Forty-three percent (N=14) were between the ages of 66 to 75 years old, eighteen percent (N=6) were between the ages of 56-65 years old, sixteen percent (N=5) were between the ages of 46 to 55 years old, six percent (N=2) were 76 years old or older, and three percent (N=1) were between the ages 18 to 24 years old. Majority of the subjects were married. Of the thirty-two subjects, sixty-six percent (N=21) were married, nineteen percent (N=6) were single, thirteen percent (N=4) were widowed, and three percent (N=1) were divorced. For most, highest level of education was high school. Forty-four percent (N=14) had attended high school, twenty-eight percent (N=9) had attended college, nineteen percent (N=6) had attended grade school, and nine percent (N=3) attended a trade school.

The subjects were also asked about pain level, heart disease, and diabetes. Sixty-nine percent (N=22) of the subjects were pain-free, six percent (N=2) were in very severe pain, nine percent (3) were in moderate severe pain, six percent (N=2) were in moderate pain, three percent (N=1) were in severe pain, three percent (N=1) were in mild pain, and three percent (N=1) were uncomfortable. Twenty-five percent (N=8) had a history of heart disease. Thirty-one percent (N=10) had diabetes or “high blood sugar”.

A few questions asked about medications, home blood pressure monitoring, transportation, living conditions, employment, and help at home. Eighty-four percent (N=27) of the subjects took all medications as prescribed. Thirty-four percent (N=11) of the subjects measured their blood pressures at home on a regular basis, while sixty percent (N=19) had a blood pressure machine at home. Ninety-four percent (N=30) of the subjects had transportation available for their primary care appointments. Seventy-five percent (N=24) had someone at home to help with health needs and twenty-five percent (N=8) did not have help at home. Nevertheless, seventy-eight percent (N=25) reported living alone and nineteen percent (N=6) did live with someone. Sixty-nine percent (N=22) did not believe money was a barrier in controlling blood pressure. Eighty-four percent (N=27) were employed. Ninety-one percent (29) of the subjects were retired. Fifteen percent (N=5) were unemployed and nine percent were not retired. The socio-demographic characteristics are displayed in Tables 1.1, 1.2, and 1.3.

A summary of the HPLP II survey responses is located in Table 1.4. All fifty-two questions from the HPLP II and all blood pressure measurements were examined using Pearson's Correlation Coefficient. The following categories had significant results: interpersonal relations, spiritual growth, health responsibility, and stress management.

Interpersonal Relations was analyzed with the average blood pressure measurements and yielded several moderately significant correlations. The results for Interpersonal Relations are located in Table 2.2. First, an inverse correlation with moderate significance was found (r= -0.398, p=0.024, p<0.05) between systolic blood pressure measurements and praising other people easily for their achievements. Secondly, a moderate correlation (r=-0.355, p=0.046, p<0.05) was found between systolic blood

pressure measurements and discussing my problems and concerns with people close to me. Thirdly, a moderate correlation was discovered between systolic blood pressure measurements and maintaining meaningful and fulfilling relationships with others. Lastly, a moderate correlation (r=-0.374, p=0.035, p<0.05) was discovered between systolic blood pressure measurements and touching and being touched by people I care about.

Spiritual Growth was analyzed with the average systolic blood pressure measurement. A summary of the Spiritual Growth results is located in Table 2.3. Three questions from the survey correlated significantly with the average systolic blood pressure measurement. The questions were as follows: look forward to the future (r=-0.363, p=0.041, p<0.05), work toward long-term goals in my life (r=-0.393, p=0.026, p<0.05), and find each day interesting and challenging (r=-0.369, p=0.037, p<0.05).

Health Responsibility had only one question that resulted in a moderately significant correlation with systolic blood pressure. The results for Health Responsibility are outlined in Table 2.1. The significant correlation was noted between discuss my health concerns with health professionals and the average systolic blood pressure measurement(r=-0.412, p=0.019, p<0.05).

Stress Management had two moderately significant results. A summary of the Stress Management results is located in Table 2.4. The average systolic blood pressure and take some time for relaxation each day was correlated (r=-0.353, p=0.048, p<0.05). The second correlation was between the question, balance time between work and play, and systolic blood pressure (r=-0.353, p=0.048, p<0.05).

Among the different categories of the HPLP II, only one category provided a correlation with elevated diastolic blood pressure. Under Stress Management, an inverse, moderate correlation was discovered between subjects getting enough sleep and diastolic blood pressure ($r=-0.505$, $p= 0.003$, $p<0.05$). In other words, subjects who claimed to get enough sleep had lower diastolic blood pressures.

Discussion

The demographic data provided great insight into the type of sample population obtained for this study. The sample population mostly consisted of high school educated, married, Caucasian males, who were between the ages of 66 to 75 years old. The increased number of patients within the 66 to 75 age range is an important finding because Knight et al. (2001) reported that treated patients who were 65 years old or older were two and a half times more likely to be hypertensive than patients less than 55 years old. All 32 subjects were hypertensive and uncontrolled. The subjects (N=32) had at least two blood pressure readings (consecutively) that were greater than 140/90 mmHg.

The researcher included other diseases or problems, such as diabetes and heart disease, into the demographics survey, because certain diseases are affected by or have influence on hypertension (Knight, et al., 2001). Knight et al. also mentioned the presence of arthritic pain as a factor in poor blood pressure control. The subjects for the most part in this study were pain-free (66% of the population), but unfortunately some subjects rated pain from mild to very severe pain.

In the study by Berlowitz, et al. (1998), the researcher suggested diabetes and heart disease were part of the characteristics that healthcare providers considered when attempting to manage uncontrolled hypertension. Berlowitz, et al. also reported that most

hypertensive men are diabetic and states that cardiovascular disease is common among hypertensive men. Co-morbidity, such as angina, was associated with better blood pressure control (Knight et al., 2001). The study by Knight et al. also discovered the hypertensive veteran population had a higher incidence of other coexisting diseases, such as congestive heart failure, stroke, myocardial infarctions, and diabetes, than any other settings. When asked about diabetes or high blood sugar, approximately one third of the subjects in this study had a history of high blood glucose. Of the 32 patients in the study, 31% had a history of heart disease.

In the study by Hyman & Pavlik (2001), the researchers discussed that poor access to or use of healthcare does not affect uncontrolled hypertension. According to their study, 92 percent of all patients with uncontrolled hypertension had insurance, 86 percent reported a regular source of care, and the mean number of visits to a health care provider was 4.28 per year (Hyman and Pavlik, 2001). The authors found that patients with uncontrolled hypertension, unaware or aware and treated or untreated, were individuals with access to and receiving medical care. Stockwell, et al. (1994) summarized that 80% or more of insured health care workers failed to achieve blood pressure control, even though the workers had full coverage and access.

Veterans have access to healthcare and are encouraged to use the various financial and transportation programs. Transportation and money have a positive influence on controlling hypertension among veterans (Knight et. al, 2001). The Veterans Health Administration has multiple programs and resources that encourages health promotion and reduces the barriers that inhibit health-promoting behaviors. For instance, prescribed medications have low co-pays; and depending of the veteran's benefits, medications are

sometimes free of charge. In this study of 32 patients, only thirteen percent believed money was a barrier in controlling blood pressure, while sixty-nine percent did not believe money was a barrier.

Another example of access to healthcare was transportation. The Veteran Health Administration provided veterans with transportation in several different ways: station cars, taxis, vans, and ambulances if needed. In this study, ninety-four percent of the subjects had transportation to primary care doctor appointments. The VA system also offered home assistance for homebound patients to reduce barriers to health needs. In this study, seventy-five percent had someone at home to help with health care needs and seventy-eight percent lived alone.

In the past, non-compliance with medications has been a questionable contributing factor to uncontrolled hypertension. Recent studies have shown that some patients were compliant. In the study by Weir et al. (2000), 97% of the hypertensive subjects took medications as prescribed. Shaw, Anderson, Maloney, Jay, and Fagan (1995) stated that seventy percent of the hypertensive patients claimed to have never missed a medication. In the current study, eighty-four percent of the uncontrolled hypertensive veterans reported taking medications as prescribed.

Another factor in question was self-blood pressure measurements. In the study by Weir et al. (2000), less than half of the 727 subjects measured their own blood pressures. In this study, only 34% of the patients measured their blood pressures at home, while 60% of the patients had a blood pressure machine at home. In one study, self-blood pressure measurements did not replace the primary clinic blood pressure measurements, but patients who measured their blood pressures at home improved their blood pressures

(Padfield, 2002). In the current study, 34% of the patients measured their blood pressures at home and still had uncontrolled hypertension.

Several categories of the HPLP II had moderately significant results that were inversely correlated. The Interpersonal Relations category revealed that having a relationship with others affects systolic hypertension. Interpersonal relations did not affect diastolic blood pressures. A moderately strong correlation was discovered between "discussing my problems and concerns with others" and systolic blood pressure measurements, indicating that not discussing concerns or problems with others increases systolic blood pressure. In addition, a stronger correlation was found among systolic blood pressure and "praising other people easily for their achievements", indicating that not praising others increases systolic blood pressure. Lastly, "maintaining meaningful and fulfilling relationships with others" had the strongest correlation in the category. Maintaining meaningful and fulfilling relationships decreases systolic blood pressures. One study by Marin-Reyes & Rodriguez-Moran (2001) discovered among 40 hypertensive subjects that a significant association existed between family support and therapy compliance.

Spiritual Growth had a significant impact on systolic blood pressures, but not on diastolic blood pressures. A correlation was found between "looking forward to the future" and systolic blood pressure, signifying looking forward to the future decreased systolic blood pressure. Another health behavior in this category, "working toward long-term goals and finding each day interesting/challenging", was correlated with systolic blood pressures. Not having long-term goals or not finding each day interesting increased the systolic pressure.

Other studies have discovered similar findings on spirituality. Everson, Kaplan, Goldburg, & Salonen (2000) studied 1038 middle-aged men with socioeconomic risk factors for atherosclerotic vascular disease and ischemic heart disease in hopes of finding an association between hopelessness and blood pressure elevation. The researchers identified high levels of hopelessness as a significant predictor of blood pressure elevation over a 4-year period. Another study by Steffen, Hinderliter, Blumenthal, & Sherwood (2001) studied effects of religious coping on ambulatory blood pressure among 155 subjects (78 African Americans and 77 Caucasians) and determined from the results that religion lowers blood pressures.

Health Responsibility and Stress Management had significant correlations with systolic blood pressures. In Health Responsibility, the statement "discuss my health concerns with health professionals" was moderately correlated to systolic blood pressure. This result indicated that "discussing problems with health professionals", such as nurses or providers, decreased an elevated systolic blood pressure. One statement from the Stress Management category, "take some time for relaxation each day" was correlated to systolic blood pressures, signifying that not taking some time for relaxation and not balancing time between work and play may increase systolic blood pressures. In the past, several research studies have investigated the effects of stress on hypertension. One randomized, control study with 127 subjects discovered that stress reduction techniques, such as relaxation and mediation, decreased systolic and diastolic hypertension (Schneider, Staggers, Sheppard, Alexander, Rainforth, Kondwani, Smith, & King, 1995).

The other categories from the HPLP II, such as Nutrition and Physical Activity, did not significantly correlate to systolic or diastolic blood pressures. Most research

studies correlate increased physical activity (exercise) or healthy eating habits to lower blood pressures measurements (Weir et al., 2002). In other words, healthy eating habits and exercise are expected to decrease elevated blood pressures.

The goal of this study was to discover the barriers to controlled hypertension among Appalachian veterans. The Health Promotion Model provided the framework for reaching this goal. The researcher focused on assessing the subjects' prior behaviors and personal factors. Next, the researcher used the HPLP II survey to ask the subjects about perceived barriers to controlling hypertension. The HPLP II survey was instrumental in asking questions about health behaviors or health barriers. The study discovered that a decrease in interpersonal relations, spiritual growth, health responsibility, or stress management correlated with an elevation in systolic blood pressure.

Nursing Implications

Nursing profession.

Nurses, in every health care setting and at all levels of education, can incorporate hypertension screening into their patient care duties. Hypertension screening is a comprehensive and ongoing process. Hypertension screening includes measuring the blood pressure, asking about risk factors (smoking, family history, stress, obesity, high sodium diets), and reviewing past blood pressure measurements for elevations (American Heart Association, 2004). Hypertension screening is imperative to decreasing complications from long-term uncontrolled hypertension. Uncontrolled hypertension leads to multiple health problems, such as strokes, heart attacks, heart disease, and kidney failure.

Nurses can start reducing the health-promoting barriers to uncontrolled hypertension by providing positive reinforcement, support, education, and reevaluations. Multiple studies report the lack of knowledge on hypertension among patients (Knight et al., 2001; Weir et al. 2000; Hyman & Pavlik, 2000; & Stockwell et al., 1994). Health care professionals need to educate newly diagnosed patients and their families on the definition, causes, risk factors, complications, the treatment, and lifestyle modifications (Weir, 2000). Knight et al. (2001) discovered that patients who were not aware of their target blood pressure or attributed a side effect to an antihypertensive medication were twice as likely to be in a higher blood pressure category.

Nurses should also follow-up on compliance with medications, diet, exercise, alcohol intake, and smoking cessation among newly diagnosed hypertensive patients. One problem with monitoring patient compliance is health care professionals forget to record the results for future reference (Berlowitz, et al.,1998). Keeping a record of treatment compliance in the patient's chart is imperative in helping the patient overcome health-promoting barriers. Reevaluating or following up with patients can reduce the barriers and provide insight on the disease progression.

Encouraging home blood pressure monitoring, assessing for co-morbidities, and following antihypertensive drug therapy side effects are important in controlling hypertension. Educate the patient on the importance of home blood pressure monitoring and how to measure blood pressures at home. Encourage patients to report side effects to antihypertensive medications, since one study found non-compliance was related to side effects (Knight et al., 2001). Health care providers should attempt to start with the lowest dose and reduce or combine the number of blood pressure medications being taken.

According to Knight et al., patients on four or more antihypertensive medications were five times more likely to have higher blood pressure than patients on one medication. Knight et al. also found that hypertensive patients were at risk for co-morbidities. Nurses and health professionals should continue monitoring for possible organ damage (kidney, heart, brain, vascular system, and eyes) and co-morbidities, such diabetes or heart disease.

When assessing or reevaluating the patients, nurses need to remember the psychosocial aspect of the patient, and encourage stress management. The following categories can be addressed during an interview with the patients and their families: interpersonal relationships, stress management, spiritual growth, and health responsibility. Ask about the following: relaxation techniques, the amount of time working and playing, health concerns or problems, future plans or events, daily interests or challenges, personal relationships, the ability to communicate with family or close friends, and being touch or touching others he or she cares about. Inquiring about interpersonal relationships, stress management, spiritual growth, and health responsibility may help to reduce the systolic blood pressure. The categories mentioned may be especially important among the elderly or isolated patients.

Research.

Future topics for nurse researchers were discovered during this study. One area that may be of interest is the barriers to controlled hypertension among diabetics. Hypertensive diabetics are at risk for cardiovascular problems and must maintain a blood pressure below 130/80 (National Heart, Lung, & Blood Institute, 2004). This study only

screened subjects for the diagnosis of diabetes, but further research on this subpopulation may be warranted.

Knight et al. (2001) mentioned an inverse correlation between decreased compliance and increased number of antihypertensive medications. Knight et al. discovered that patients on four or more antihypertensive medications were five times more likely to have higher blood pressure than patients on one medication. Researching the effects of interpersonal relationships, spiritual growth, stress management, and health responsibility on uncontrolled hypertension may be the key to helping patients' lower their blood pressures, instead of adding medications.

Available research on health promoting behaviors or barriers among uncontrolled hypertensive patients is very limited. Further research would help clarify the role of interpersonal relationships, spiritual growth, stress management, and health responsibility on hypertension. More research studies should also be conducted on different populations using the HPLP II survey, such hypertensive diabetic populations.

Limitations

One limitation in this study was the small sample size. The sample size consisted of 32 subjects. The recruiting of patients for this study was difficult and time-consuming. The recruitment process took approximately five months. One problem with recruitment was patients only wanted to see their doctor and did not want to spend extra time participating in a study.

Another limitation was the sample was of convenience. No randomization was used in selecting patients. The patients came from one location (a primary care clinic)

and volunteered to join if they were scheduled for an appointment on the day of the study.

The researcher did not perform a power analysis for this study. Nevertheless, the researcher did find an earlier study that explored the effects of psychosocial factors on a health-promoting lifestyle using the health-promoting lifestyle profile. The purpose of this study was to examine the relationships among select demographic variables, psychosocial development, and self-reported participation in a health promoting lifestyle (Misener, Phillips, & McGraw, 2000). The total Pearson's *r* for this study was 0.52.

Both the current study and the study by Misener, Phillips, and McGraw (2000) explored the influence of psychosocial factors on health promotion. The researcher used the Pearson's *r* from Misener, Phillips, & McGraw's study as an estimate of p for the current study. At an alpha of 0.05 and a power of 0.80, the sample size for the current (according to Polit & Hungler, 1999) was estimated to be at least 32 subjects.

Another limitation was the ability to generalize the findings of this study. The characteristics of the sample are not representative of the entire population. In this study, 100% of the subjects were male. No female veterans were included in this study. This study consisted of all veterans. Therefore, the results of this study could not be generalized to other populations.

Lastly, this study included patients who were in pain. Although 22 out of 32 subjects were pain-free, approximately 30% of the patients were in pain, ranging from very severe pain to uncomfortable. The presence of pain may have elevated the blood pressures obtained during the study.

Conclusion

Hypertension has been deemed as the second most frequent reason for an outpatient physician visit in the United States (McCraig, 1999). In 1999, the Veterans Health Administration decided to focus on how to more effectively to control hypertension. In hopes of contributing the mission of the Veterans Health Administration, the purpose of this study was to discover the barriers to a health-promoting lifestyle among Appalachian veterans with uncontrolled hypertension.

The results significantly show that stress management, interpersonal relationships, spiritual growth, and health responsibility effects systolic blood pressure, either negatively or positively. The problems with stress management, interpersonal relationships, spiritual growth, and health responsibility can be considered barriers to controlled hypertension. Further research is needed using the HPLP II among hypertensive patients to verify the results of this study. More studies that involve different populations and larger samples should be conducted to overcome some of the limitations of this study.

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Tables

Table 1.1 Demographics

Variable	Number	N=Number Percentages of yes	N=Number Percentage of no
Take blood pressure medications as prescribed.	32	N=27 %=84.4	N=5 %=15.6
Measure your blood pressure at home on a regular basis.	32	N=11 %=65.6	N=21 %=34.4
Owns a blood pressure machine.	32	N=19 %=59.4	N=13 %=40.6
Has transportation to the hospital for your primary care appointments?	32	N=30 %=93.8	N=2 %=6.3
Can afford your blood pressure medications.	32	N=21 %=65.6	N=11 %=34.4
Believes money is a problem with controlling blood pressure.	32	N=10 %=31.3	N=22 %=68.8
Believes trans-portation is a problem with controlling your blood pressure.	32	N=4 %=12.5	N=28 %=87.5
Has a medical history of angina or heart disease.	32	N=8 %=25.0	N=24 %=75.0
Employed	32	N=27 %=84.4	N=5 %=15.6
Retired	32	N=29 %= 90.6	N=3 %=9.4

Variable	Number Of subjects	N=Number Percentage of yes	N=Number Percentage of no
Lives alone.	32	N=6 %=18.8	N=25 %=78.1
Has someone to help you at home with your health needs?	32	N=24 %=75.0	N=8 %=25
Has diabetes or high blood sugar	32	N=10 %=31.3	N=22 %=68.8
Pain present	32	N=11 %=34.4	N=20 %=62.5

Variable	Number of subjects	N=Number of subjects P=Percentage
Race	32	
Caucasian		N=26 %=81.3
African American		N=5 %=15.6
Native American		N=1 %=3.1
Latin American		N=0 %=0
Other		N=0 %=0

Variable	Number of subjects	N=Number of subjects P=Percentage
Age	32	
18-24 yrs old		N=1 3.1
25-35 yrs old		N=0 %=0
36-45 yrs old		N=0 %=0
46-55 yrs old		N=5 %=15.6
56-65 yrs old		N=6 %=18.8
66-75 yrs old		N=14 %=43.8
76 yrs old or older		N=2 %=6.3
Gender		
Male	32	N=32 %=100
Female	32	N=0 %=0

Variable	Number of subjects	N=Number of subjects P=Percentage
Martial Status	32	
Married		N=21 %=65.6
Single		N=6 %=18.8
Widowed		N=4 %=12.5
Divorced		N=1 %=3.1
Education	32	
Grade School		N=6 %=18.8
High School		N=14 %=43.8
College		N=9 %=28.1
Trade School		N=3 %=9.4

Table 1.2 Pain Levels

Pain Level	Frequency	Percent	Valid Percent	Cumulative Percent
none	22	68.8	68.8	68.8
uncomfortable	1	3.1	3.1	71.9
mild	1	3.1	3.1	75.0
moderate	2	6.3	6.3	81.3
severe	1	3.1	3.1	84.4
mod severe	3	9.4	9.4	93.8
	32	100	100	

Table 1.3 Hypertension: Mean, Median, Standard Deviation, & Percentage

Blood Pressure		Systolic	Diastolic
Mean (Average)		154.63	81.50
Median		152.00	80.00
Standard Deviation		12.104	7.462
Percentile	**25%**	148.25	76.00
	50%	152.00	80.00
	75%	156.50	87.50

Table 1.4 The Health Promotion Lifestyles Profile II (HPLPII) Survey Responses

HPLP II Statements	Number	Never=1 N/%	Sometimes=2 N/%	Often=3 N/%	Routinely=4 N/%	Mean	Standard Deviation
1. Discuss my problems and concerns with people close to me.	N=32 %=100	N=5 %=15.6	N=16 %=50.0	N=7 %=21.9	N=4 %=12.5	2.31	0.896
2. Choose a diet low in fat, saturated fat, and cholestrol	N=32 %=100	N=5 %=15.6	N=13 %=40.6	N=10 %=31.3	N=12.5 %=12.5	2.41	0.911
3. Report any unusual signs or symptoms to a physician or other health professionals.	N=32 %=100	N=2 %=6.3	N=6 %=18.8	N=13 %=40.6	N=11 %=34.4	3.03	0.897
4. Followed a planned exercise program.	N=32 %=100	N=10 %=31.3	N=12 %=37.5	N=7 %=21.9	N=3 %=9.4	2.09	0.963
5. Get enough sleep.	N=32 %=100	N=6 %=18.8	N=10 %=31.3	N=10 %=31.3	N=6 %=18.8	2.50	1.016
6. Feel I am growing and changing in positive ways.	N=32 %=100	N=8 %=25.0	N=11 %=34.4	N=8 %=25.0	N=5 %=15.6	2.31	1.030
7. Praise other people easily for their achievements.	N=32 %=100	N=4 %=12.5	N=7 %=21.9	N=13 %=40.6	N=8 %=25.0	2.78	0.975
8. Limit use of sugars and food containing sugar (sweets).	N=32 %=100	N=10 %=31.3	N=10 %=31.3	N=8 %=25.0	N=4 %=12.5	2.19	1.030
9. Read or watch TV programs about improving health.	N=32 %=100	N=11 %=34.4	N=11 %=34.4	N=6 %=18.8	N=4 %=12.5	2.09	1.027

HPLP II Statements	Number	Never=1 N/%	Sometimes=2 N/%	Often=3 N/%	Routinely=4 N/%	Mean	Standard Deviation
10. Exercise vigorously for 20 or more minutes at least 3 times a week.	N=32 %=100	N=11 %=34.4	N=7 %=21.9	N=8 %=25.0	N=6 %=18.8	2.28	1.143
11. Take some time for relaxation each day.	N=32 %=100	N=2 %=6.3	N=8 %=25.0	N=11 %=34.4	N=11 %=34.4	2.97	0.933
12. Believe that my life has purpose.	N=32 %=100	N=3 %=9.4	N=6 %=18.8	N=11 %=34.4	N=12 %=37.5	3.00	0.984
13. Maintain meaningful and fulfilling relationships with others.	N=32 %=100	N=1 %=3.1	N=10 %=31.3	N=8 %=25.0	N=13 %=40.6	3.03	0.933
14. Eat 6-11 servings of bread, cereal, rice, and pasta each day.	N=32 %=100	N=10 %=31.3	N=14 %=43.8	N=5 %=15.6	N=3 %=9.4	2.03	0.933
15. Question health professionals in order to understand their instructions.	N=32 %=100	N=2 %=6.3	N=11 %=34.4	N=13 %=40.6	N=6 %=18.8	2.72	0.851
16. Take part in light to moderate physical activity, 30-40 minutes.	N=32 %=100	N=7 %=21.9	N=11 %=34.4	N=10 %=31.3	N=4 %=12.5	2.34	0.971
17. Accept those things in my life which I can not change.	N=32 %=100	N=2 %=6.3	N=7 %=21.9	N=10 %=31.3	N=13 %=40.6	3.06	0.948
18. Look forward to the future.	N=32 %=100	N=3 %=9.4	N=5 %=15.6	N=12 %=37.5	N=12 %=37.5	3.03	0.967
19. Spend time with close friends.	N=32 %=100	N=1 %=3.1	N=9 %=28.1	N=10 %=31.3	N=12 %=37.5	3.03	0.897
20. Eat 2-4 servings of fruit each day.	N=32 %=100	N=5 %=15.6	N=15 %=46.9	N=7 %=21.9	N=5 %=15.6	2.38	0.942
21. Get a second opinion when I question my health care provider's advice.	N=32 %=100	N=9 %=28.1	N=15 %=46.9	N=4 %=12.5	N=4 %=12.5	2.09	0.963
22. Take part in leisure-time physical activities.	N=32 %=100	N=18 %=56.3	N=9 %=28.1	N=2 %=6.3	N=3 %=9.4	1.69	0.965
23. Concentrate on pleasant thoughts at bedtime.	N=32 %=100	N=4 %=12.5	N=14 %=43.8	N=10 %=31.3	N=4 %=12.5	2.44	0.878

HPLP II	Number	Never=1 N/%	Sometimes=2 N/%	Often=3 N/%	Routinely=4 N/%	Mean	Standard Deviation
Statements							
24. Feel content and at peace with myself.	N=32 %=100	N=3 %=9.4	N=7 %=21.9	N=9 %=28.1	N=13 %=40.6	3.00	1.016
25. Find it easy to show concern, love, and warmth to others.	N=32 %=100	N=2 %=6.3	N=9 %=28.1	N=8 %=25.0	N=13 %=40.6	3.00	0.984
26. Eat 3-5 servings of vegetables each day.	N=32 %=100	N=6 %=18.8	N=11 %=34.4	N=11 %=34.4	N=4 %=12.5	2.41	0.946
27. Discuss my health concerns with health professionals.	N=32 %=100	N=4 %=12.5	N=9 %=28.1	N=11 %=34.4	N=8 %=25.0	2.72	0.991
28. Do stretching exercises at least 3 times a week.	N=32 %=100	N=6 %=18.8	N=17 %=53.1	N=4 %=12.5	N=5 %=15.6	2.41	1.073
29. Use specific methods to control my stress.	N=32 %=100	N=7 %=21.9	N=12 %=37.5	N=6 %=18.8	N=7 %=21.9	2.41	1.073
30. Work toward long-term goals in my life.	N=32 %=100	N=5 %=15.6	N=12 %=37.5	N=11 %=34.4	N=4 %=12.5	2.44	0.914
31. Touch and am touched by people I care about.	N=32 %=100	N=2 %=6.3	N=9 %=28.1	N=11 %=34.4	N=10 %=31.3	2.91	0.928
32. Eat 2-3 servings of milk, yogurt, or cheese each day.	N=32 %=100	N=5 %=15.6	N=16 %=50.0	N=5 %=15.6	N=6 %=18.8	2.38	0.976
33. Inspect my body at least monthly for physical changes/danger signs.	N=32 %=100	N=4 %=12.5	N=13 %=40.6	N=9 %=28.1	N=6 %=18.8	2.53	0.950
34. Get exercise during usual daily activities.	N=32 %=100	N=3 %=9.4	N=16 %=50.0	N=8 %=25.0	N=5 %=15.6	2.47	0.879
35. Balance time between work and play.	N=32 %=100	N=9 %=28.1	N=6 %=18.8	N=12 %=37.5	N=5 %=15.6	2.41	1.073
36. Find each day interesting and challenging.	N=32 %=100	N=1 %=3.1	N=10 %=31.3	N=10 %=31.3	N=11 %=34.4	2.97	0.897
37. Find ways to meet my needs for intimacy.	N=32 %=100	N=1 %=3.1	N=16 %=50.0	N=7 %=21.9	N=8 %=25.0	2.69	0.896
38. Eat only 2-3 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day.	N=32 %=100	N=4 %=12.5	N=14 %=43.8	N=8 %=25.0	N=6 %=18.8	2.50	0.950

HPLP II Statements	Number	Never=1 N/%	Sometimes=2 N/%	Often=3 N/%	Routinely=4 N/%	Mean	Standard Deviation
39. Ask for information from health professionals about how to take good care of myself.	N=32 %=100	N=7 %=21.9	N=9 %=28.1	N=13 %=40.6	N=3 %=9.4	2.38	0.942
40. Check my pulse rate when exercising.	N=32 %=100	N=19 %=59.4	N=10 %=31.3	N=3 %=9.4	N=0 %=0	1.50	0.672
41. Practice relaxation or mediation for 15-20 minutes daily.	N=32 %=100	N=10 %=31.3	N=9 %=28.1	N=5 %=15.6	N=8 %=25.0	2.34	1.181
42. Am aware of what is important to me in life.	N=32 %=100	N=4 %=12.5	N=7 %=21.9	N=11 %=34.4	N=10 %=31.3	2.84	1.019
43. Get support from a network of caring people.	N=32 %=100	N=6 %=18.8	N=10 %=31.3	N=6 %=18.8	N=10 %=31.3	2.63	1.129
44. Read labels to identify nutrients, fats, and sodium content in packaged food.	N=32 %=100	N=10 %=31.3	N=12 %=37.5	N=4 %=12.5	N=6 %=18.8	2.19	1.091
45. Attend educational programs on personal health care.	N=32 %=100	N=17 %=53.1	N=13 %=40.6	N=2 %=6.3	N=0 %=0	1.53	0.621
46. Reach my target heart rate when exercising.	N=32 %=100	N=23 %=71.9	N=5 %=15.6	N=4 %=12.5	N=0 %=0	1.41	0.712
47. Pace myself to prevent tiredness.	N=32 %=100	N=4 %=12.5	N=16 %=50.0	N=8 %=25.0	N=4 %=12.5	2.38	0.871
48. Feel connected with some force greater than myself.	N=32 %=100	N=4 %=12.5	N=7 %=21.9	N=6 %=18.8	N=15 %=46.9	3.00	1.107
49. Settle conflicts with others through discussion and compromise.	N=32 %=100	N=4 %=12.5	N=11 %=34.4	N=7 %=21.9	N=10 %=31.3	2.72	1.054
50. Eat breakfast.	N=32 %=100	N=0 %=0	N=7 %=21.9	N=6 %=18.8	N=19 %=59.4	3.38	0.833
51. Seek guidance or counseling when necessary.	N=32 %=100	N=7 %=21.9	N=14 %=43.8	N=8 %=25.0	N=3 %=9.4	2.22	0.906
52. Expose myself to new experiences and challenges.	N=32 %=100	N=5 %=15.6	N=14 %=43.8	N=11 %=34.4	N=2 %=6.3	2.31	0.821

Table 2.1 Health Responsibility

Question	Number of Subjects	Systolic r=correlation p=Significance	Diastolic r=correlation p=Significance
Report any unusual signs or symptoms to a physician or other health professionals.	N=32	r= -0.269 p= 0.136	r= 0.134 p= 0.464
Read or watch TV programs about improving health.	N=32	r= 0.104 p= 0.571	r= -0.156 p= 0.394
Question health professionals in order to understand their instructions.	N=32	r= 0.002 p= 0.992	r= 0.231 p= 0.204
Get a second opinion when I question my health care provider's advice.	N=32	r= -0.002 p= 0.989	r= 0.063 p= 0.730
Discuss my health concern with health professionals.	N=32	r= **-0.412**** p= 0.019	r= 0.240 p= 0.185
Inspect my body at least monthly for physical changes /danger signs.	N=32	r= -0.235 p= 0.196	r= 0.096 p= 0.601
Ask for information from health professionals about how to take good care of myself.	N=32	r= 0.007 p= 0.969	r= 0.029 p= 0.876
Attend educational programs on personal health care.	N=32	r= 0.323 p= 0.071	r= 0.013 p= 0.945
Seek guidance or counseling when necessary.	N=32	r= -0.245 p= 0.176	r= -0.317 p= 0.077

**p=0.05

Table 2.2 Interpersonal Relations

Question	Number of Subjects	Systolic r=correlation p=Significance	Diastolic r=correlation p=Significance
Discuss my problems and concerns with people close to me.	N=32	**r= - 0.355**** p= 0.046	r=- 0.269 p= 0.137
Praise other people easily for their achievements.	N= 32	**r= - 0.398**** p= 0.024	r= 0.008 p= 0.965
Maintain meaningful and fulfilling relationships with others.	N=32	**r= -0.428**** p= 0.015	r= 0.129 p= 0.481
Spend time with close friends.	N=32	r= -0.269 p= 0.136	r= 0.051 p= 0.783
Find it easy to show concern, love, and warmth to others.	N=32	r= - 0.130 p= 0.478	r= -0.123 p= 0.502
Touch and am touched by people I care about.	N=32	**r= -0.374**** p= 0.035	r= 0.110 p= 0.551
Find ways to meet my needs for intimacy.	N=32	r= -0.315 p= 0.079	r= 0.090 p= 0.626
Get support from a network of caring people.	N=32	r= -0.320 p= 0.074	r= -0.249 p= 0.169
Settle conflicts with others through discussion and compromise.	N=32	r= 0.130 p= 0.477	r= -0.146 p= 0.426

**p=0.05

Table 2.3 Spiritual Growth

Question	Number of Subjects	Systolic r=correlation p=Significance	Diastolic r=correlation p=Significance
Feel I am growing and changing in positive ways.	N=32	r=- 0.200 p= 0.273	r=- 0.135 p= 0.462
Believe that my life has purpose.	N=32	r=- 0.217 p= 0.233	r= 0.025 p= 0.890
Look forward to the future.	N=32	**r= -0.363**** p= 0.041	r= -0.039 p= 0.831
Feel content and at peace with myself.	N=32	r= -0.178 p= 0.392	r= -0.181 p= 0.322
Work toward long-term goals in my life.	N=32	**r= - 0.393**** p= 0.026	r= -0.186 p= 0.308
Find each day interesting and challenging.	N=32	**r= -0.369**** p= 0.037	r= 0.107 p= 0.558
Am aware of what is important to me in life.	N=32	r= -0.031 p= 0.866	r= 0.039 p= 0.831
Feel connected with some force greater than myself.	N=32	r= -0.142 p= 0.438	r= -0.200. p= 0.274
Expose myself to new experiences and challenges.	N=32	r= -0.040 p= 0.829	r= -0.011 p= 0.950

**p=0.05

Table 2.4 Stress Management

Question	Number of Subjects	Systolic r=correlation p=Significance	Diastolic r=correlation p=Significance
Get enough sleep.	N=32	r= - 0.144 p= 0.431	r=***-0.505***** p= 0.003
Take some time for relaxation each day.	N=32	r= ***- 0.353***** p= 0.048	r= 0.077 p= 0.677
Accept those things in my life which I can not change.	N=32	r***=*** -0.172 p= 0.346	r= 0.184 p= 0.314
Concentrate on pleasant thoughts at bedtime.	N=32	r= 0.046 p= 0.801	r= 0.125 p= 0.496
Use specific methods to control my stress.	N=32	r= - 0.323 p= 0.071	r= -0.045 p= 0.806
Balance time between work and play.	N=32	r= -***0.353***** p= 0.048	r= 0.017 p= 0.926
Practice relaxation or mediation for 15-20 minutes daily.	N=32	r= 0.048 p= 0.796	r= -0.090 p= 0.626
Pace myself to prevent tiredness.	N=32	r= -0.164 p= 0.370	r= -0.022 p= 0.907

**p=0.05

Appendix A

Department of Veterans Affairs Informed Consent to Participate in the Research

Study Entitled:

Discovering the Barriers to Health Promoting Lifestyles Among Appalachian Veterans with Uncontrolled Hypertension

LEAD INVESTIGATOR

Dr. Diana Stotts
Marshall University
404 Prichard Hall
Huntington, WV
25755
304-696-2623

VA STUDY INVESTIGATORS

Dr. Jack Terry
VA Medical Center
1540 Spring Valley Drive
Huntington, WV 25701
304-429-6741 Ext. 2885

Tara Hatfield, RN, BSN
1540 Spring Valley Drive
Huntington, WV 25701
304-429-6741 Ext. 2431

PURPOSE OF THE STUDY:

The purpose of this study is to discover the barriers or anything that limits health-promoting lifestyles among the Appalachian veteran population with uncontrolled hypertension or high blood pressure.

Participant's Initials_____

DESCRIPTION OF STUDY, PROCEDURES USED, AND HOW LONG IT WILL LAST

In signing this document, you are giving consent to be interviewed by a Marshall University Family Nurse Practitioner student, who is also an employee of the Veterans Affairs Medical Center (VAMC). You are also giving consent to participate in two written surveys, the Health Promotion Lifestyles Profile Survey and a demographic form.

You understand you will be part of a research study that will focus on the barriers or anything that limits a health promoting lifestyle among Appalachian Veterans with uncontrolled hypertension (high blood pressure). This study, approved by Marshall University and Veterans Affairs Medical Center Institutional Review Boards, will provide guidance to people who are trying to help veterans control their high blood pressures.

If you will participate in the study at the Veterans Affairs Medical Center in the primary care clinic area (Medical Outpatient), you will be asked about your medicine compliance, self-blood pressure monitoring, access to care, ownership of blood pressure machine, finances for medication, diagnosis of angina or heart disease, race, age, occupation, sex, martial status, living arrangements, language, and education. You also will be asked questions about your diet, exercising, feelings about yourself and your abilities, relationships with others, leisure time, sleep patterns, communication with healthcare professionals, health, and spiritual life.

In signing this document, you are giving your consent to a Marshall University Family Nurse Practitioner student, (who is also an employee of the Veterans Affairs Medical Center (VAMC)) access to your computerized medical records and permission to measure your blood pressure. The researcher will need to measure your current blood pressure and review your last recorded blood pressure in my computerized medical record to determine if you are able to be included in the study.

You understand the researcher plans to manually measure my blood pressure in the left arm with an aneroid sphygmomanometer and stethoscope. You know you will be sitting in a chair with both of my feet flat on the floor, while the researcher takes your blood pressure. You also understand the left arm will not be used if it is medically contradicted or not advised. You also understand the researcher will access my medical record by a portable computer and record your last medical outpatient blood pressure measurement. You understand the study is at the Veterans Affairs Medical Center in the primary care clinic area. The study will take approximately 30 minutes to one hour.

REASONABLY FORESEEABLE DISCOMFORTS, INCONVENIENCES, OR RISKS OF THE STUDY

The researchers foresee no risks, discomforts, or inconveniences from this study on you or your health. Your participation or your refusal to answer questions will have no effect on you or your family's services/benefits at the VAMC.

Participant's Initials_____

EXPECTED BENEFITS OF THE STUDY

This study will help discover the barriers or the limitations to a health promoting lifestyle among Appalachian veterans with uncontrolled hypertension (high blood pressure). However, you will receive no direct benefit as a result of participation.

OTHER TREATMENT AVAILABLE

Your participation is completely voluntary. You can decide not to participate or withdraw from the study at any time. Your treatment and benefits at the VAMC will not be any different if you decide not to participate in the study. You can withdraw from the study and it will not affect your opportunity to obtain treatment at the VAMC or any other benefits to which you are entitled.

SPECIAL CIRCUMSTANCES

The study investigator can stop your participation at any time if he or she feels it is necessary. Your medical records will remain confidential to the extent of the Law and Institutional Policy allow. If you have questions about this study, you may contact the investigators at any time. If you have questions regarding your rights as a participant in the research study, you may contact the VA Institutional Review Board at 304-429-6741 Ext. 2792.

NEW FINDINGS/ PATIENT COMPENSATION

You will be notified of any new information that will be found out during the study. There is no patient compensation for this study.

RIGHTS OF RECOURSE

In the event you are injured as a result of this study, you will receive medical care, including emergency care, in accordance with the Federal Law and the Department of Veterans Affairs Policy. Legal recourse is also available as it would be in any instance of alleged negligence.

USE OF RESEARCH RESULTS

The results of the study may be published, but your records or identity will not be revealed. The information for the research study will not be able to identify you. The consent forms and information from the research study will be maintained in a sealed envelope in a locked file cabinet. The investigator obtaining the research will be the only person who has access to the file cabinet keys. You will not be identified by name, photograph, or by any other means without your written consent.

Participant's Initials_____

AUTHORIZATION FOR RELEASE OF PROTECTED HEALTH INFORMATION FOR RESEARCH PURPOSES

You have been asked to be part of a research study under the direction of Dr. Diana Stotts ad her research team. The purpose of this study is discovering the barriers or anything

that limits a health promoting lifestyle among Appalachian Veterans with uncontrolled hypertension (high blood pressure).

By signing this document, you will authorize the Veterans Health Administration (VHA) to provide Dr. Diana Stotts and her research team to access the following information about you: the last blood pressure measurement in outpatient services.

If you do not sign this authorization, you will not be part of the study.

This authorization to use your information will expire at the end of the research study.

You can revoke this authorization at any time. To revoke your authorization, you can write to Dr. Diana Stotts or you can ask a member of the research team to give you a form to revoke the authorization. If you revoke this authorization, you will not be able to continue to participate in the study. This will not affect your rights as a VHA patient.

If you revoke this authorization, Dr. Diana Stotts and her research team can continue to use information about you that has been collected. No information will be collected after you revoke the authorization.

The VHA complied with the requirements of the Health Insurance Portability and Accountability Act of 1996 and its privacy regulations and all other applicable laws that protect your privacy. We will protect your information according to these laws. Despite this protection, there is a possibility that your information could be used or disclosed in a way that will no longer be protected. Our Notice of Privacy Practices (a separate document) provides more information on how we protect your information. If you do not have a copy of the Notice, the research team will provide one to you.

I have read this authorization form and have been given the opportunity to ask questions. If I have questions later, I understand I can contact Dr. Stotts (1-304-696-6750) or Tara Hatfield, RN (1-304-429-6741 ext. 2431). I will be given a signed copy of this authorization form for my records. I authorize the use of my identifiable information as described in this form.

Participant's Initials_____

Discovering the Barriers to Health Promoting Lifestyles Among Appalachian Veterans with Uncontrolled Hypertension

_____

PRINTED NAME OF SUBJECT

_____ _____

SIGNATURE OF SUBJECT DATE

_____ _____
PRINTED NAME OF WITNESS DATE

_____
PRINTED NAME OF PERSON OBTAINING CONSENT

_____ _____
SIGNATURE OF PERSON OBTAINING INFORMED CONSENT DATE

_____
PRINTED NAME OF INVESTIGATOR

_____ _____
SIGNATURE OF INVESTIGATOR DATE

Participant's Initials_____

Appendix B

DEMOGRAPHIC SURVEY

Blood pressure average_____

Please circle your answer for each question.

1) Do you take all your blood pressure medications as prescribed? **Yes or No**

2) Do you measure your blood pressure at home on a regular basis? **Yes or No**

3) Do you own a blood pressure machine? **Yes or No**

4) Do you have transportation (i.e. car, bus, or someone to bring you) to the hospital for your primary care appointments? **Yes or No**

5) Can you afford your blood pressure medications? **Yes or No**

6) Do you believe money is a problem with controlling blood pressure? **Yes or No**

7) Do you believe transportation is a problem with controlling your blood pressure? **Yes or No**

8) Do you have a medical history of angina or heart disease? **Yes or No**

9) Are you (please circle): **Caucasian, African American, Native American, Latin American, or other**?

10) How old are you (please circle): **18 to 24 years old, 25 to 35 years old, 36 to 45 years old, 46 to 55 years old, 56 to 65 years old, 66 to 75 years old, 76 years old or older**?

11) Are you employed? **Yes or No**

Are you retired? **Yes or No**

Are you unemployed? **Yes or No**

12) What is your gender? **Male or Female**

13) Are you: **Married, Single, Widowed, or Divorced**? (please circle one)

14) Do you live alone? **Yes or No**

15) Do you speak English? **Yes or No**

16) What is your highest level of education: **grade school, high school, college, or trade/vocational school**?

17) Do you have someone to help you at home with your health needs? **Yes or No**

18) Do you have diabetes or high blood sugar? **Yes or No**

Appendix C

DIRECTIONS: This questionnaire contains statements about your *present* way of life or personal habits. Please respond to each item as accurately as possible, and try not to skip any item. Indicate the frequency with which you engage in each behavior by circling:

N for never, **S** for sometimes, **O** for often, or **R** for routinely

	NEVER	SOMETIMES	OFTEN	ROUTINELY
1. Discuss my problems and concerns with people close to me.	N	S	O	R
2. Choose a diet low in fat, saturated fat, and cholesterol.	N	S	O	R
3. Report any unusual signs or symptoms to a physician or other health professional.	N	S	O	R
4. Follow a planned exercise program.	N	S	O	R
5. Get enough sleep.	N	S	O	R
6. Feel I am growing and changing in positive ways.	N	S	O	R
7. Praise other people easily for their achievements.	N	S	O	R
8. Limit use of sugars and food containing sugar (sweets).	N	S	O	R
9. Read or watch TV programs about improving health.	N	S	O	R
10. Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber).	N	S	O	R
11. Take some time for relaxation each day.	N	S	O	R
12. Believe that my life has purpose.	N	S	O	R
13. Maintain meaningful and fulfilling relationships with others.	N	S	O	R
14. Eat 6-11 servings of bread, cereal, rice and pasta each day.	N	S	O	R
15. Question health professionals in order to understand their instructions.	N	S	O	R
16. Take part in light to moderate physical activity (such as sustained walking 30-40 minutes 5 or more times a week).	N	S	O	R
17. Accept those things in my life which I can not change.	N	S	O	R
18. Look forward to the future.	N	S	O	R
19. Spend time with close friends.	N	S	O	R
20. Eat 2-4 servings of fruit each day.	N	S	O	R
21. Get a second opinion when I question my health care provider's advice.	N	S	O	R
22. Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).	N	S	O	R
23. Concentrate on pleasant thoughts at bedtime.	N	S	O	R
24. Feel content and at peace with myself.	N	S	O	R
25. Find it easy to show concern, love and warmth to others.	N	S	O	R
26. Eat 3-5 servings of vegetables each day.	N	S	O	R

	NEVER	SOMETIMES	OFTEN	ROUTINELY
27. Discuss my health concerns with health professionals.	N	S	O	R
28. Do stretching exercises at least 3 times per week.	N	S	O	R
29. Use specific methods to control my stress.	N	S	O	R
30. Work toward long-term goals in my life.	N	S	O	R
31. Touch and am touched by people I care about.	N	S	O	R
32. Eat 2-3 servings of milk, yogurt or cheese each day.	N	S	O	R
33. Inspect my body at least monthly for physical changes/danger signs.	N	S	O	R
34. Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking car away from destination and walking).	N	S	O	R
35. Balance time between work and play.	N	S	O	R
36. Find each day interesting and challenging.	N	S	O	R
37. Find ways to meet my needs for intimacy.	N	S	O	R
38. Eat only 2-3 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day.	N	S	O	R
39. Ask for information from health professionals about how to take good care of myself.	N	S	O	R
40. Check my pulse rate when exercising.	N	S	O	R
41. Practice relaxation or meditation for 15-20 minutes daily.	N	S	O	R
42. Am aware of what is important to me in life.	N	S	O	R
43. Get support from a network of caring people.	N	S	O	R
44. Read labels to identify nutrients, fats, and sodium content in packaged food.	N	S	O	R
45. Attend educational programs on personal health care.	N	S	O	R
46. Reach my target heart rate when exercising.	N	S	O	R
47. Pace myself to prevent tiredness.	N	S	O	R
48. Feel connected with some force greater than myself.	N	S	O	R
49. Settle conflicts with others through discussion and compromise.	N	S	O	R
50. Eat breakfast.	N	S	O	R
51. Seek guidance or counseling when necessary.	N	S	O	R
52. Expose myself to new experiences and challenges.	N	S	O	R

HEALTH-PROMOTING LIFESTYLE PROFILE II

Scoring Instructions

Items are scored as	Never (N)	=	1
	Sometimes (S)	=	2
	Often (O)	=	3
	Routinely (R)	=	4

A score for overall health-promoting lifestyle is obtained by calculating a mean of the individual's responses to all 52 items; six subscale scores are obtained similarly by calculating a mean of the responses to subscale items. The use of means rather than sums of scale items is recommended to retain the 1 to 4 metric of item responses and to allow meaningful comparisons of scores across subscales. The items included on each scale are as follows:

Health-Promoting Lifestyle	1 to 52
Health Responsibility	3, 9, 15, 21, 27, 33, 39, 45, 51
Physical Activity	4, 10, 16, 22, 28, 34, 40, 46
Nutrition	2, 8, 14, 20, 26, 32, 38, 44, 50
Spiritual Growth	6, 12, 18, 24, 30, 36, 42, 48, 52
Interpersonal Relations	1, 7, 13, 19, 25, 31, 37, 43, 49
Stress Management	5, 11, 17, 23, 29, 35, 41, 47

3/95: snw

University of Nebraska Medical Center

NEBRASKA'S HEALTH SCIENCE CENTER
A Partner with Nebraska Health System

COLLEGE OF NURSING
Gerontological, Psychosocial, & Community Health Nursing

Dear Colleague:

Thank you for your request and payment to use the *Health-Promoting Lifestyle Profile II*. As indicated in the enclosed form, you have permission to copy and use the enclosed *Health-Promoting Lifestyle Profile II* for non-commercial data collection purposes such as research or evaluation projects provided that content is not altered in any way and the copyright/permission statement at the end is retained. The instrument may be reproduced in the appendix of a thesis, dissertation or research grant proposal without further permission. Reproduction for any other purpose, including the publication of study results, is prohibited without specific permission.

We thank you for your interest in the *Health-Promoting Lifestyle Profile II* and wish you much success with your efforts.

Sincerely,

Susan Noble Walker, EdD, RN, FAAN
Professor and Chair,
Department of Gerontological, Psychosocial and Community Health Nursing

Encl.: Health-Promoting Lifestyle Profile II
Scoring instructions
List of publications reporting use of the original Lifestyle Profile

985330 Nebraska Medical Center / Omaha, NE 68198-5330 / 402-559-6382 / FAX: 402-559-6379 / www.unmc.edu

Appendix D

Department of Veterans Affairs

Memorandum

Date: April 28, 2004

From: John W. Leidy, Jr., M.D., Ph.D. Chairman,

Subj: Approval of Research Protocol

To: Diana Stotts, Ph.D.
Tara Hatfield, RN

This is to inform you that your research protocol entitled,

#0001 "Discovering the Barriers to Health Promoting Lifestyles Among Appalachian Veterans with Uncontrolled Hypertension

was reviewed and unanimously approved for 1 year by the R&D committee at the **April 28, 2004** meeting. This project will be due for annual review and approval in March 2005.

Thank you,

for April Harrison

JOHN W. LEIDY, JR., M.D., Ph.D.
Chairman, Research and Development Committee

Automated VA FORM 2105

Appendix E

MARSHALL UNIVERSITY
www.marshall.edu

Office of Research Integrity
Institutional Review Board

Friday, March 19, 2004

Diana Stotts
School of Nursing

RE: IRB Study # 3098 **At:** Marshall IRB 1

Dear Dr. Stotts:

Protocol Title:
Discovering the Barriers to Health Promoting Lifestyles Among Appalachian Veterans with Uncontrolled Hypertension

This letter is to acknowledge the receipt of the information identified below.

Expiration Date:	3/18/2005	
Our Internal #:	547	
Type of Change:	(Other)	Expedited
Expedited ?:	☐	
Date of Change:	3/19/2004	
Date Received:	3/18/2004	
On Meeting Date:		
Description:	In accordance with 45 CFR 46.110, I am granting expedited approval to the above minimal risk study for the period of 12 months. The purpose of the study, to be conducted at the Huntington VA, is to discover the barriers or anything that limits health-promoting lifestyles among the Appalachian veteran population with uncontrolled hypertension or high blood pressure. A progress report of the study will be due prior to the anniversary date of 3/18/05. Prior to implementing this study, approval by the R & D committee at the VA must be obtained.	

Respectfully yours,

Henry K. Driscoll, M.D.
IRB Chairperson

Appendix F

CURRICULUM VITAE

Tara Leigh Porter

PROFILE

- Nine years of nursing experience in the areas of nursing education, staff development, nursing informatics, community home health, home health, nursing home care, nursing management, telemetry, critical care, ambulatory/primary care, staff development, and emergent care.
- Abstract accepted and presented at Duquesne University for the Annual Transcultural Nursing Conference (2001), titled **Leininger's Sunrise Model: An Enlightening Approach to SCI care.**
- Abstract accepted at the American Association of Spinal Cord Injury Nurses National Convention (2001), titled **Leininger's Sunrise Model: An Enlightening Approach to SCI care.**
- Managing editor of alternative medicine newspaper, **Connections,** from 2001-2002.

EDUCATION

- Currently pursuing a MSN degree for Family Nurse Practitioner and a Post-MSN for Nursing Education – Marshall University (September 2001-May 2005)
- Bachelor of Science in Nursing – Marshall University, Huntington, WV (1998)
- Associate Degree in Nursing – Shawnee State University (1996)

EMPLOYMENT HISTORY

- December 2003-Present, Staff Development, Huntington VAMC, Nursing Service
- July 2001-December 2003, VAMC Medical Outpatient Nurse (Ambulatory/Emergent/Primary Care Staff Nurse)
- Sept 1999-July 2001 VAMC Critical Care Staff Nurse/Charge Nurse
- May 1998-Sept 1999 VAMC Telemetry Staff Nurse/ Team leader/Charge Nurse
- Aug 96-May 98 – Mariner Health Care Registered Nurse Supervisor, Huntington, WV

PROFESSIONAL AFFILIATIONS

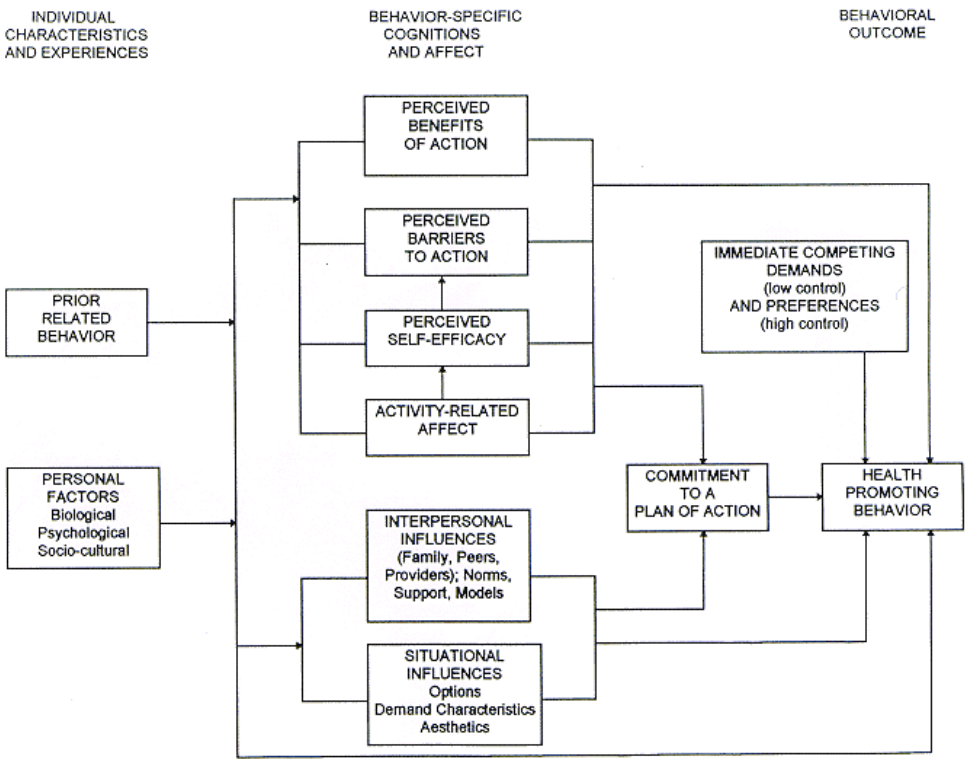
- Inducted into the Sigma Theta Tau Society (2002) as a community leader and actively involved as a member of the local chapter's committee.
- Student member of the American Academy of Nurse Practitioners (2002-present).

- Wholistic Wellness Network (2001), research editor (2001), and managing editor (2001-2002) for *Connections*, the newspaper for the Wholistic Wellness Network.

LICENSURE

- Ohio License, expiration date: August, 2005.
- West Virginia License, expiration date: December 31, 2005.

Appendix G



Revised Health Promotion Model

Appendix H

PERMISSION FORM

I plan to use the *Health-Promoting Lifestyle Profile II* in a research or evaluation project entitled:
Exploring The Relationship Between Health-promoting Lifestyle and Uncontrolled Hypertension

I am enclosing a check for ten US dollars ($10.00) payable to the **University of Nebraska Medical Center College of Nursing**.

☒ English ☐ Spanish ☐ Both

Tara Hatfield RN
Print Name

Tara Hatfield RN
Signature

MSN FNP student
Position

606 326 0992
Area Code Telephone #

Mailing Address
4408 Blackburn Ave.
Ashland, Ky 41101

TLeigh2004@aol.com
E-mail Address

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Susan Noble Walker
Susan Noble Walker

4/25/03
Date

Please send two signed copies of this page to:

Susan Noble Walker, Ed.D., R.N., F.A.A.N.
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University of Nebraska Medical Center
985330 Nebraska Medical Center
Omaha, Nebraska 68198-5330