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# Critical Influences on the Management and Home Self-Monitoring of Blood Pressure Among Middle-Aged Hypertensive Americans: A Grounded Theory Approach

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# CRITICAL INFLUENCES ON THE MANAGEMENT AND HOME SELF MONITORING OF BLOOD PRESSURE AMONG MIDDLE-AGED HYPERTENSIVE AMERICANS: A GROUNDED THEORY APPROACH

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# CRITICAL INFLUENCES ON THE MANAGEMENT AND HOME SELF MONITORING OF BLOOD PRESSURE AMONG MIDDLE-AGED HYPERTENSIVE AMERICANS: A GROUNDED THEORY APPROACH

by

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## Abstract

**Background:** Within the last two decades high blood pressure has become endemic worldwide, affecting populations of developed, undeveloped, and developing countries equally (International Society of Hypertension [ISH, 2008]) at an estimated global economic cost in the billions of dollars. In the United States (US) approximately 75 million people suffer from high blood pressure and 75% of people with high blood pressure do not have their blood pressure under control (CDC, 2010). Recent studies have shown that management which includes self-monitoring may hold the key to sustainable blood pressure control in all populations regardless of race or ethnicity.

**Purpose:** This qualitative study aims to discover critical influences that lead hypertensive middle-aged Americans to manage and self-monitor their blood pressure at home.

**Philosophical Underpinnings**: The philosophical underpinnings used to guide this study are based on the qualitative research paradigm, symbolic interactionism and pragmatism.

**Methods:** A grounded theory methodology was used in this study of English-speaking adults age 40-65 with high blood pressure, who manage and self-monitor their blood pressure at home at least once a month. Audio-taped, semi-structured interviews with open-ended questions were utilized to collect data. Categories are formed to capture all major themes.

**Results:** The following three dominant categories emerged from the data: accepting the diagnosis, establishing support and tending to health. A core category of daring to live under pressure was constructed and reflected the participants' critical influence in

management and self-monitoring of their blood pressure. A conceptual model of the dominant categories was developed to guide future intervention studies.

**Conclusion:**

Accepting the diagnosis, establishing support, and tending to health for individuals with high blood pressure are crucial to abating this chronic disease in middle-aged adults.

# ACKNOWLEDGEMENTS

"The heights by great men reached and kept were not attained by sudden flight. But they, while their companions slept, were toiling upward in the night."

Henry Wadsworth Longfellow (1807-1882)

Throughout this most exciting yet daunting, rigorous and sometimes extremely arduous journey there were moments when I felt that the goals to which I aspired were unattainable. Many challenges presented themselves along the way, both personal and professional, but those words of Longfellow which I learned as a little girl in primary school in Jamaica were the beacon that propelled me forward.

Although the process seemed a solitary one at times, there were others who steadfastly supported me and kept me going in the right direction. These unwavering individuals are my dissertation committee members, Dr. Mary Colvin my committee chairperson, Dr. Carolyn LePage and Dr. Fern Peoples my committee members. Dr. Colvin's quiet strength and gentle guidance was especially helpful in affirming my conviction in choosing the formulation of a grounded theory approach to this study. Dr. LePage provided guidance and clarity with structure and readability of this document. Finally, Dr. Peoples unwavering positivity and feedback was deeply reassuring and restorative. All of these great teachers were instrumental in bringing this process to completion; to them I am deeply grateful.

# DEDICATION

This work is dedicated to memory of my father, William McCurdy who taught me to believe in myself. To Roque P. Diego MD who inspired me to think outside the box and finally to the memory my teacher and friend Isobel C. Diego RN, MSN whose life was cut short before she could finish her dissertation.

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## Problem and Domain of the Inquiry

### Introduction

In a speech prior to the launch of a multi-city tour to bring awareness to the problem of high blood pressure or hypertension in America Barbara Blakeney, former president of the American Nurses Association [ANA], 2004) stated:

> High blood pressure is an under-recognized national public health crisis the time to act is now. Ultimately, we want to change the way people think about their high blood pressure. Through education and awareness we want to emphasize that this is a serious condition and help them do a better job of managing it. The public needs to know that although high blood pressure often has no symptoms, it may be causing damage today, which may lead to serious health consequences (p.1).

Within the last two decades high blood pressure has become endemic worldwide, and a major public health concern that affects the populations of developed, undeveloped, and developing countries (International Society of Hypertension [ISH, 2008]) at an estimated global economic cost in the billions of dollars. The World Health Organization (WHO, 2009) reported that over seven million deaths occurred worldwide directly as a result of high blood pressure. Furthermore, according to the WHO estimates, 50% of all coronary heart disease and 75% of all strokes are attributed to high blood pressure. Recent data indicate there will be a 30% increase in the worldwide prevalence of high blood pressure by the year 2025 (Kearney et al., 2005; Murray & Lopez, 2008). Based on

these data findings the WHO designated high blood pressure to be an important public health challenge requiring high global priority. In addition, the WHO declared an international public health mandate recommending that all nations manage and control blood pressure among their respective populations, irrespective of gender or ethnicity, as blood pressure control is found to be suboptimal in all racial groups across many nations. This mandate represented a paradigm shift with important ramifications in the way high blood pressure is viewed, studied and managed by clinicians and patients. Previously, certain groups were considered high risk for hypertension, and interventions were targeted at those high risk populations; however, the current consensus is to provide quality care for all persons with high blood pressure regardless of age, gender, race or ethnicity. This integrated approach has coalesced both international and national health standards for the management of blood pressure under a single coherent strategy.

Approximately 75 million Americans have high blood pressure. A third of adults in the United States (US) age 20 and older have high blood pressure, and one out of every five people with high blood pressure is not aware that they have this condition (Center for Disease Control and Prevention [CDC], 2010). In addition, 70% of people with high blood pressure are not achieving the desired blood pressure goals. Another 7% of individuals with high blood pressure are not informed by their healthcare practitioner that they have elevated blood pressure (CDC, 2010). High blood pressure has been labeled a "silent killer" because many individuals with this condition usually experience no symptoms and therefore are not aware that their blood pressure may be elevated. This makes them unlikely to seek medical care, placing them at increased risk for

cardiovascular disease (CVD), cerebrovascular accidents (CVA), or stroke and untimely death.

High blood pressure is one of several major chronic illnesses affecting middle-aged and older Americans. According to the Administration on Aging (AOA) division of the United States Census Bureau (US Census) by 2030 there will be 71.5 million older persons, double the number of older adults presently living in the United States (US Census, 2000). An increase in blood pressure commonly occurs with increasing age. Currently, 50% of adults in the US over 60 years of age have high blood pressure (National Institute of Health [NIH], 2009; Senior Journal, 2004). As the US population ages, the incidence of high blood pressure is expected to increase; the complications and costs that arise from this chronic disease are expected to grow substantially. The incidence of high blood pressure among middle-aged Americans is largely unknown. Fortunately, epidemiological studies have shown that small reductions in blood pressure at any age can lower cardiovascular risk substantially, and improves quality of life and life expectancy (Hgjjar, Kotchen, & Kotchen, 2006; Wang & Vassan, 2005).

**Statement of the Problem**

Even with the explosion of scientific understanding of pathophysiology, pharmaceutical management, and lifestyle modification measures, helping individuals manage and control blood pressure remains a major challenge for clinicians and patients alike. So far the conventional approach of prescribing medical treatment based on the office blood pressure measurement (usual or standard care) has proven insufficient in the prevention and control of high blood pressure, and its global prevalence continues to

grow. The literature on the importance of engaging, empowering and helping individuals self-manage chronic illnesses is increasing and may be a key to blood pressure control in individuals with high blood pressure (American Heart Association [AHA], 2009; WHO, 2009). Nurses may play a key role in helping patients manage blood pressure by recommending home blood pressure self-monitoring as part of the management of this chronic condition.

While the following authors, (Hozawa, Shimazu, Kuriyama, & Tsuji, 2006; Pickering, et al., 2008; Stergiou, Nasothimiou, Kalogeropoulous, Pantazis, & Biabis, 2010; Viera, Cohen, Mitchell & Sloane, 2008;) concur that home blood pressure monitoring provides a more accurate reflection of blood pressure, and is more predictive of cardiovascular risk than office blood pressure, these authors fail to explain what influences hypertensive individuals to achieve blood pressure control. According to Viera, Cohen, Mitchell & Sloane (2008) it is still unclear why some individuals engage in home blood pressure management and self-monitoring and others, even on the advice of their clinicians, do not. While purchases of home blood pressure monitoring devices are at an all-time high, blood pressure control remains suboptimal (Yarrows, Julias, & Pickering, 2000). The literature revealed no precise data on the number of hypertensive individuals in the US who are currently engaged in home self-blood pressure monitoring. It is unclear what influences them to self-monitor, and what keeps them engaged in self-monitoring. Influences on the management and self-monitoring of blood pressure among this population are poorly understood. Understanding these influences and processes they utilize may provide insight into new approaches benefiting individuals who are newly diagnosed with this condition. It could also benefit individuals with high blood pressure

who may not be succeeding at achieving blood pressure goals, as well as those who may not have considered management and self-monitoring an option. Furthermore, this information may help clinicians better understand how to empower patients to manage and self-monitor their blood pressure at home to achieve blood pressure control.

No studies have been found which specifically address the influences on middle-aged hypertensive Americans who manage and self-monitor their blood pressure at home. The value hypertensive individuals place on management and self-monitoring of blood pressure is not fully understood. Cognitive factors are considered primary mediators of health behavior performance (Conner & Norman, 1998). Yet it is not known what hypertensive patients think about the information obtained from self-monitoring, or how they use the information in achieving blood pressure goals. However, the assumption is that performing home blood pressure monitoring has the potential to provide valuable information to individuals on the state of their health, improve blood pressure awareness, and ultimately improve blood pressure control. Basing the effectiveness of the treatment of high blood pressure solely on office blood pressure measurements (usual or standard care) has not resulted in improved blood pressure outcomes in the US population. There is consensus in the literature that home blood pressure monitoring is cost effective, accurate, and easy to self-administer when utilizing the new oscillometric devices which are available for home use (Viera, Cohen, Mitchell & Sloane, 2008). Blood pressure self-monitoring is viewed as a significant aspect of the self-management of this chronic condition, as it provides immediate feedback to the individual on the state of their blood pressure and overall health. It is postulated that this knowledge may then influence individuals to adhere to medical advice, make needed adjustment in lifestyle choices, and

improve communication with their healthcare practitioner, which may ultimately lead to better blood pressure control (Pickering, et al., 2008).

## Purpose of the Study

The purpose of this qualitative study, using grounded theory methodology, is to explore the critical influences that lead hypertensive middle-aged Americans to manage and self-monitor their blood pressure at home, and to develop a theory that describes these influences, strategies and processes of management and self-monitoring. The development of a theory could be used to guide the implementation of effective interventions to help individuals with high blood pressure achieve blood pressure control.

## Research Questions

In grounded theory, the research question should be broad, yet provide focus and clarity about the phenomenon of interest (Corbin & Strauss, 2008; Speziale & Carpenter, 2007). As is consistent with grounded theory, this study's focus will be refined as data are generated and analyzed leading to an emergent theory. The overarching research questions that will be used to guide this study are: (1) What are the current methods and practices utilized by middle-aged hypertensive Americans who manage and self-monitor their blood pressure at home? (2) What are the critical influences that guide the decision making process? (3) Are there differences and similarities in themes related to the management and self-monitoring practices among middle-aged hypertensive Americans?

## Significance of the Study

High blood pressure is a chronic condition for which there is no cure to date. It is among

the leading chronic disease states affecting middle-aged and older adults and is universally recognized as the single most important risk factor for cardiovascular and cerebrovascular disease (Brown, Bartholomew & Naik, 2007). The phenomenon of high blood pressure management and self-monitoring needs to be examined, as achieving target blood pressure outcomes have been elusive despite improved pharmaceutical therapy and national campaigns promoting lifestyle modification. Little is known about the processes and influences on the management and self-monitoring practices of this population.

According to the WHO reducing blood pressure reduces strokes by 35-40%, heart attacks by 20-25 % and heart failure by more than 50% (WHO, 2009). Thirty percent of individuals with high blood pressure are still unaware that they have the disease. Another 40% of individuals are not receiving treatment, and two thirds of those being treated have inadequately controlled blood pressure (Seventh Report of the Joint National Committee on Prevention, Detection Evaluation, and Treatment of High Blood Pressure [JNC-7], 2004). The United States Department of Health and Human Services (USDHHS) has made reducing blood pressure a national priority based on the goals of the Healthy People 2020 initiative. The office of Disease Prevention and Health Promotion (DPHP) establishes national health goals every 10 years. Among the healthcare goals for Healthy People 2020 is reducing the number of adults in the US with high blood pressure (USDHHS, 2009).

So far, achieving national blood pressure goals have been elusive. Additional strategies may be needed to achieve these blood pressure goals in the US population. It has been shown that high blood pressure is preventable, reversible, or, at the very least

manageable with medication and by adopting and maintaining a healthy lifestyle (Elmer et al., 2006; Lopes, Martin, Nashar, Morrow, Goodfriend, & Egan 2003; Viera , Kshirsagar, & Hinherliter, 2008).

Based on the American Diabetic Association's (ADA) data on glucose management and self-monitoring, optimal self-management for hypertensive individuals may include home blood pressure self-monitoring. Self-monitoring could substantially reduce the disease burden and healthcare costs associated with uncontrolled blood pressure in the same manner as management and self-monitoring of blood glucose has done for patients with diabetes (ADA, 2008; ADA, 2009). At home blood pressure self-monitoring can be a useful self-management tool, assisting patients to lower their blood pressure, modify lifestyle practices, (smoking, diet, exercise, alcohol misuse) and adhere to medication regimen in order to achieve specific blood pressure goals within the established JNC-7 blood pressure guidelines (Appendix G).

**Significance to Nursing**

According to the American Nurses Association (ANA), the nursing profession exists as a human endeavor to care for the sick. However, within the broader scope, it is concerned with disease prevention, health protection, promotion, and optimization across the lifespan for all people. The ANA defines nursing as: "the protection, promotion, and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, communities, and populations (ANA, 2010)."

Helping patients manage, control or reverse high blood pressure is within the scope of nursing practice and philosophy, and is an important challenge for nurses at all levels. Nursing education, research, practice and policy are inextricably interwoven, where knowledge is applied in all areas to support evidence-based nursing practice benefiting all patients. Information from this study may lead to better understanding of self-management which may ultimately result in advancing at-home monitoring as a viable complement to office monitoring. In addition, it could also lead to improved communication between patients and clinicians as well as empower patients to better manage this life threatening chronic condition.

**Nursing Education**

The significance of this issue to nursing education is rooted in the fact that the experience of patients and their personal knowledge can inform nursing education research and practice, and is a legitimate source of knowledge. Information concerning the influences of middle-aged hypertensive Americans regarding home blood pressure management and self-monitoring can provide new knowledge and add content to a curriculum or continuing education program for nurses. Nursing curricula provide student nurses and faculty with opportunities to engage individuals at the community level by providing health promoting-activities to the public at no cost. Some of these activities include community health screenings for various health conditions, including high blood pressure. Such screenings provide an unprecedented opportunity at the community level to educate the public on health-promoting activities as well as home blood pressure self-monitoring.

**Nursing Practice**

Nurses are on the frontline of healthcare delivery and outnumber physicians by a ratio of four to one (Center for Nursing Advocacy, 2004). In the coming years the number of primary care physicians is expected to decline, while advanced practice nurses (APN) who are positioned to fill the gaps in care delivery will inevitably face the challenge of achieving national blood pressure goals established by the Healthy People 2020 initiative. Nursing practice is a dynamic process incorporating new knowledge in the performance of clinical tasks to support a "best practice" environment, and to enhance the well-being of patients. Exploring the influences of individuals who self-monitor blood pressure at home can generate new knowledge, influence the plan of care and change the way nursing care is delivered to patients with high blood pressure across various clinical settings (Barkis, et al. 2008). Many clinicians are reluctant to endorse home self-blood pressure monitoring despite evidence of the reliability of home monitors. This study's findings may highlight the value of self-monitoring as a viable management strategy leading to wider adoption of this practice as an adjunct to office blood pressure monitoring when hypertensive patients are discharged from the hospital.

**Nursing Research**

Nursing research, the foundation for the development of nursing knowledge, is based on nursing science, and establishes the scientific basis for nursing education and practice. The issue of blood pressure control is elusive, challenging and multifaceted therefore, various scientific approaches are necessary to illuminate the issue, answer questions, and fill gaps in the literature. With the paucity of qualitative studies addressing

the topic of this study, the findings will add to the current body of scientific knowledge as well as contribute to nursing science, and provide support for home blood pressure self-monitoring.

The value of this study to nursing research lies in its relevance to practice (Munhall, 2007). Therefore, the National Institute of Nursing Research ([NINR], 2009) has established priorities for the advancement of nursing research by focusing on certain key areas of practice. Included among these priorities is an emphasis on health promotion and disease prevention, as well as methods for improving the quality of life of patients through self-management. Research initiatives such as this study are fully supported by the ANA, individual nurses, and nursing leaders across the US (ANA, 2004). This study will attempt to fill some of the gaps in this area, and add to the scientific body of knowledge regarding the phenomenon under study.

**Public Policy**

Through visionary leadership, the nursing profession has shaped public policy ever since Florence Nightingale wrote her original manuscript in 1860 (Dunphy, 2006; Nightingale, 1969). As the largest group of healthcare providers nurses are positioned to influence healthcare policy for the betterment of patients. In 2005, the ANA under the leadership of Barbara Blakeney successfully launched a free multi-city screening campaign to raise awareness regarding high blood pressure all across America (ANA, 2004). In addition, the Cardiovascular Nurses Association (CNA) in concurrence with the American Heart Association (AHA), and the American Society of Hypertension (ASH) endorsed the use of home self-monitoring as a cost effective strategy for the diagnosis

and management of high blood pressure (Pickering et al., 2008). Furthermore, these organizations have developed collaborative policy statements with the recommendations that insurance companies provide reimbursement to providers and clinicians for prescribing, educating, and evaluating home blood pressure measurements and monitoring devices. These organizations also support reimbursement to patients for the purchase of home blood pressure monitoring devices. Should insurance companies provide reimbursement for blood pressure monitoring devices, cost would cease to be a barrier to blood pressure control for those who do not have the ability to pay for these devices. Eliminating or reducing cost could provide unprecedented access to care for all individuals with high blood pressure.

## Philosophical Underpinnings

The philosophical underpinning used to guide this research inquiry is based on the qualitative research paradigm from a social constructivist perspective. The qualitative paradigm uses a multi-method focus which involves an interpretive, holistic and naturalistic approach to a problem and includes several traditions (Patton, 1990). Qualitative research methods allow health science researchers to study phenomena in a natural setting, and explore the philosophical underpinnings of the tradition that best fits the phenomena in question. From a social constructivist perspective, the goal of research is focused on the participants' views and subjective meanings of their experiences, formed through their interaction with others, and based on their historical and cultural norms (Creswell, 2007). Research utilizing this approach, inductively generates or develops a theory or pattern from the data rather than starting with a theory. The grounded theory approach used in the study allows the researcher to acquire knowledge

with the intent to develop a theory, or a pattern from the processes of a social or human problem that is identified from the views and perspectives of individual participants (Creswell, 2007). This study's aim is to explore the influences of middle-aged Americans with high blood pressure, with regards to their management and self-monitoring practices and as a result develop a theory that describes these processes. The grounded theory approach to be used in this study is modeled after Corbin and Strauss' (2008) grounded theory description. The philosophical underpinnings related to this method are symbolic interactionism and pragmatism.

**Symbolic Interactionism**

Symbolic interactionism addresses human actions, how individuals and groups interpret and give meaning to their lives based on the interpretation of the actions of others. The research paradigm or world view of grounded theory endorsed by Corbin and Strauss (2008) derived its philosophical underpinnings from the American pragmatism and symbolic interactionism movements in sociology espoused by the late 19th century American philosophers, Herbert Blumer and his mentor, George Mead (Blumer, 1969). Blumer defined symbolic interactionism as a framework that focuses on the subjective aspects of human social processes rather than an objective point of view. These social processes have structure, with both implied and explicit codes of conduct and procedures that circumscribe how interactions unfold and shape the meaning that comes from them. He pointed out that humans are considered "pragmatic actors" who interpret their environment symbolically and continually adjust their behavior or actions in response to their interpretation of the behaviors and actions of others. Blumer further stated, "this process aids individuals' ability to think about and react to their own actions" (p. 45).

The three concepts that define Blumer's (1969) symbolic interactionism are: (a) meaning, which refers to the construction of one's social reality. It addresses how individuals and groups interpret and ascribe meaning to their lives based on their action and interaction with others and with their environment; (b) language, considered the source of thought, is the method by which meaning is communicated and (c) thought which is based on language, requires managing and reflecting different points of view. Because humans possess the ability to think and react to their own behavior as well as the behavior of others they are regarded as active, co-creators of their social environments in response to the actions of others in their environment. Symbolic interactionism posits that society developed from these organized patterns of interactions among individuals. Research conducted from this perspective focuses on the face-to-face interactions with individuals, participant observations, processes, and the meaning of social events to individuals who are active participants in those events. These processes may then be communicated through research reflecting the experiences of individuals in their own language. In this study, the concept of symbolic interactionism provides the philosophical basis and best fit to explore the critical influences of hypertensive, middle-aged Americans who manage and self-monitor their blood pressure from their own perspective, in their own words, in their real world environment, and in their own language, with the meaning and thought they ascribe to their experiences in the context of their day-to-day life.

**Pragmatism**

The second philosophical worldview that underpins grounded theory is pragmatism. This world view primarily focuses on research outcomes and solutions to problems. It is not

committed to any one system of reality or philosophy. Researchers using this paradigm are free to choose methods, techniques and procedures that best meet their needs and purposes (Creswell, 2007). As a philosophy, pragmatism evolved out of behavioral psychology and was popularized by the most influential pragmatist of the 20th century William James. James, a medical doctor, philosopher and psychologist, laid the foundation for the development of pragmatism.

Pragmatists believe that individual knowledge is created through action, interaction, and self-reflection. Pragmatists also believe that research occurs in context with social, historical, and political norms and as such do not see the world as an absolute unity. Pragmatists seek the truth about a given situation at a given time and in a given context. According to James, "pragmatists search for the truth; truth is what works at the time" (James, 1907, p. 201). Furthermore, "truth is made true by events and its verity is in fact an event, or a process; this process verifies itself" (p. 202). Therefore, truth cannot be obtained from an existing theory; rather, it must be developed from inductive data with continuous empirical verification (Wuest, 2006). The major epistemological assumptions underlying pragmatism are: (a) knowledge is useful for practical affairs (b) knowledge is cumulative, and provides the basis for evolution of thought and society and (c) knowledge leads to changes in ideas which result in action, therefore knowledge and action are interrelated. Action leads to problems which are to be contemplated and resolved, resulting in the development of new knowledge. Pragmatists subscribe to the notion that collective knowledge, meaning and truth can be derived through the performance of actions that have observable practical outcomes. From the pragmatist

point of view the researcher is vital to that which is being researched and is an integral part of the process of discovery.

Furthermore, pragmatism views humans as creative participants who actively construct their social world, where knowledge is created as a result of their action and interaction with others, and their own self-reflection, in order to discover solutions to problems they are facing (Corbin & Strauss, 2008). With new knowledge behavioral adjustments are made based on the interpretations of the meaning of the behaviors of others. Pragmatist philosophy informs symbolic interactionism whereby "meanings emerge through practical actions to solve real problems and through these actions people come to know the world" (Charmaz, 2010 p. 188). This philosophical approach supports the assumption of this researcher that new knowledge can be derived from the study of this phenomenon. This type of knowledge may empower middle-aged Americans with high blood pressure to take corrective action, when self-monitoring reveals abnormal blood pressure levels.

## Research Design

### Grounded Theory

Historically, Corbin and Strauss' grounded theory description evolved from the original work of Barney Glaser and Anselm Strauss (1967) two sociologists from the University of California who originated and developed this method. Glaser, with expertise in quantitative methods, and Strauss, grounded in qualitative methods, collaborated using components of the two methods to formulate grounded theory as a legitimate qualitative methodology. Early on, grounded theory distinguished itself from

other qualitative methods in its goal to generate theory grounded in data, with rigorous and systematic analysis. Eventually, the co-founders ended their collegial relationship and began producing individual research work, developing their own brand and following. This resulted in the formulation of two versions of grounded theory namely, the Strauss version and the Glaser (classical) version. Recently, other versions have emerged mainly from students and colleagues of the former co-founders.

There is an ongoing debate regarding the differences between the Glaser and Strauss versions of grounded theory. However, on the surface the differences are unrecognizable as the fundamentals of the two versions have remained the same. They each use coding, constant comparison, questions, theoretical sampling, memos, and the inductive process where theory is grounded in data. Both versions adhere to the research process, gather data, code, compare, categorize the data, develop a core category and generate a theory from the data (Walker & Myric, 2006).

Since its introduction, grounded theory has been successfully used to explain and uncover the meaning of different phenomena in nursing as well as in other behavioral fields leading to the development of theory. According to Strauss and Corbin (1998), "Grounded theory means, that a theory was derived from data that is systematically gathered, and analyzed throughout the research process," (p.12). While Glaser and Strauss did not expound on the philosophical underpinnings of grounded theory, Corbin gives a thorough explanation of the philosophical and epistemological basis for grounded theory (Corbin & Strauss, 2008). The theory is based on the original philosophies of leading American philosophers of the late 19$^{th}$ and early 20$^{th}$ centuries John Dewey, George Herbert Mead, William James and Herbert Blumer. Although one does not need

to subscribe to a particular philosophical orientation to use grounded theory, the two philosophical principles that emerge as the dominant underpinning of grounded theory, are symbolic interactionism and pragmatism as previously described.

**Assumptions of Grounded Theory**

Grounded theory is guided by the assumption that people make sense of their environment, regardless of how complicated or disordered their world may appear. According to Glaser and Strauss (1967), grounded theory research is also based on the assumption that each individual or group shares a specific psychosocial problem that is not communicated. When unarticulated problems and the resultant psychosocial processes are uncovered and conceptualized, the researcher will then be able to explain the behavior of the group.

In terms of methodology, grounded theory acknowledges the complexity of human interactions and seeks to capture human experiences by the use of multiple perspectives in the process of analysis utilizing concepts and various levels of abstraction. In order to answer the research questions regarding the influences of middle-aged hypertensive Americans who manage and self-monitor their blood pressure at home, grounded theory provides the best fit. The middle years (age 40-65) according to Erikson (1982) represent the most productive years of adult life. Major life experiences are associated with this period of life where individuals seek meaning and purpose in their lives. Adverse health conditions which arise during this period can impact the quality of life for these individuals.  Using this method to guide this study could result in the

development of a theory, and may lead to better understanding of the processes of blood pressure management and self-monitoring in this population.

**Scope and Limitations of the Study**

This study focuses on middle-aged hypertensive Americans between the ages of 40-65 who are fluent in English, have a diagnosis of hypertension, and self-monitor their blood pressure at home at least once a month. One potential limitation of the study is selection bias which involves the recruitment process itself. Participants were initially recruited from two wellness centers affiliated with a university located in a major metropolitan city in the Southeastern United States. While this may provide a representative population of hypertensive individuals who engage in management and self-monitoring behaviors, it is possible that these participants may possess characteristics that are very similar and therefore limit the variety in management and self-monitoring experiences due to oversampling of individuals generally more interested in health. Another perceivable limitation is the setting itself. The wellness centers are open to faculty, employees, students, alumni and affiliates of the university therefore it is possible that this may limit the diversity of demographic characteristics of study participants. The university employs individuals in many sectors; the cost of membership to the wellness center may be prohibitive for some employees. This represents a potential limitation in sample selection based on socio-economic status.

The southeastern United States is rich in cultural and ethnic diversity, suggesting the findings may not apply to other communities in other regions of the United States with less diverse population. It is assumed that there will be an adequate representation of

males and females in the sample. However, if this does not occur it would represent a limitation to the study due to oversampling of one gender. This study will rely on participants self-reports. Not having access to participants' medical records and their monitoring logs may be a potential limitation in terms of determining the accuracy of self-reports. Another limitation may be the methodology itself. While grounded theory is a robust method to explore complex phenomena such as feelings, thought processes, and experiences, there is some reliance on recall, and self-report of shared information. Individuals may have difficulty with information recall and may not share their true feelings. The argument could be made, however, that the preciseness in recollections is not necessary, but rather it is the summative reflections of their experiences that will be significant to the study (Creswell, 2007).

**Chapter Summary**

This chapter reviewed the background issues and prevalence of high blood pressure internationally and nationally. The statement of the problem clearly indicates that present approaches such as using office blood pressure measurements as the hallmark of treatment have not been successful in achieving blood pressure control in a majority of hypertensive patients in the US. The purpose of the study, the relevance to nursing, education, practice, research and policy was presented. The philosophical underpinnings of the research methodology were delineated and the scope of the study and potential limitations were identified. The next chapter will review the literature regarding home blood pressure management and self-monitoring in the context of chronic illness.

# Chapter Two

## Review of the Literature

### Introduction

There are divergent viewpoints on whether or not to conduct a literature review prior to embarking on a grounded theory study. According to Corbin and Strauss (2008), it is important not to review all of the literature before conducting the study as this may inhibit the discovery of new information; however, a minimal review of the literature is suggested. The originators of grounded theory (Glaser & Strauss, 1967) advocated conducting the literature review after completing analysis in order to view the data with fresh eyes and not through the lens of pre-established ideas and theories. There are others who also advocate delaying the literature review as doing so encourages articulation of the researcher's own ideas (Charmaz, 2006). However, the chief purpose of delaying the literature review is to avoid the risk of developing preconceived notions and imposing them onto the study. Nevertheless, there are other grounded theorists who recommend a full literature review prior to commencing data collection in order to examine the data for explicit and implicit assumptions, determining bias, unsubstantiated conclusions, and identifying gaps in knowledge (Creswell, 2007; Speziale & Carpenter, 2007). These researchers deem the literature review to be a valuable component of the inquiry process providing background, significance, and purpose for the study as well as a starting point for the development of new knowledge and theory.

Since the debate regarding the literature review has not been resolved unequivocally, a literature review was conducted prior to the beginning of this proposed

study in order to provide a background for the topic and to explore what is known about at home blood pressure management and self-monitoring in middle-aged hypertensive Americans. First, a limited search of MEDLINE and CINAHL was undertaken to identify key words followed by a search using all relevant terms. In addition to MEDLINE CINAHL the following computerized databases were used for this search, Pub Med, PsycInfo, and Educational Resources. The key words are high blood pressure, hypertension, self-management influences, home blood pressure monitoring, chronic illness, and middle-aged Americans. Inspection of the reference list of all relevant articles obtained was conducted to find additional studies relating to this subject. Additional literature review was undertaken during, and following data collection and analysis, as theory emerges from the data.

During the literature review process it was discovered that there was a dearth of studies specifically addressing influences on management and self-monitoring practices of middle-aged Americans with hypertension. Most studies focused on hypertension in older Americans, clinical trials involving pharmaceuticals, medication compliance and adherence in hypertensive patients related to ethnicity, and hypertension risks, prevalence and co-occurring disorders such as diabetes and cardiovascular disease. In order to capture the impact of high blood pressure in America it was necessary to explore the history of blood pressure surveillance and home self-monitoring as it relates to this phenomenon. The following section will introduce the historical context as it relates to blood pressure surveillance in the US, blood pressure home self-monitoring in the US and the early development of non-invasive self-monitoring blood pressure devices used in the home.

## Historical Context

### Blood Pressure Surveillance

In 1960 the National Health and Nutrition Examination Survey (NHANES) began collecting data every two years on high blood pressure awareness, prevalence, treatment and control in the US adult population based on US census age categories as shown in Table 1.

Table 1

United States Census Age Categories Used by NHANES

| |
|---|
| 18-39 years |
| 40-59 years |
| 60 years and older |

In the NHANES surveys conducted in all 50 states and territories, high blood pressure is defined as a systolic of 140 or higher and a diastolic of 90 or higher. The results of these surveys have shown a statistically significant increase in blood pressures over the past 25 years in both males and females except for the early 1990s and early 2000s, where the prevalence of uncontrolled hypertension in adult women increased from 17% to more than 22%. At the same time, the rate of hypertension in men decreased from 19% to 17% (NHANES, 2007). According to NHANES, currently, hypertension rates are equal in both males and females. The 2008 NHANES results from prior surveys including the 2007 surveys indicated that high blood pressure awareness improved between 1999 and 2008 and the percentage of adults receiving treatment and whose

blood pressures were under control also improved during this time period. Conversely, the results also indicated that the highest increase in blood pressure prevalence was among middle-aged individuals age 40-59 and individuals 60 years and older. Based on these finding it is evident that blood pressure prevalence, awareness, and treatment varies by age group, but middle-aged and older adult men and women had the highest increase in blood pressures in 2008, with awareness and treatment higher in those persons 60 years and older (Egan, Zhao, & Axon, 2010: NHANES, 2007).

Today, uncontrolled blood pressure remains a major public health concern affecting populations in every major city in the US. Areas with the worst uncontrolled hypertension rates in the US are the District of Columbia and the Southern United States **(**Oza, Goodarz, & Murray, 2008). The prevalence of uncontrolled hypertension among adult men in these states hovers between 18% and 21% and about a quarter of adult women in these states (24 % to 26%) have uncontrolled hypertension (CDC, 2007). Recent data indicates high blood pressure is becoming more prevalent among young adults, adolescents and children. In a study of 14,000 young adults age 20-39 conducted by the University of North Carolina, Chapel Hill, Nguyen and colleagues found that 20 percent had high blood pressure (Nguyen, et.al , 2011). This finding contradicts the results of the NHANES (2008) where only four percent of this population was found to have high blood pressure. Factors contributing to the increase in blood pressure among younger age groups are attributed to the obesity epidemic in the US where more than 30 percent of young adults are obese (CDC, 2010). Given, there are discrepancies in the prevalence of high blood pressure in various age groups it is clear that high blood

pressure remains a dominant public health issue and middle-aged hypertensive adults could be at risk for adverse consequences if uninformed or untreated.

Blood pressure management that incorporates blood pressure self-monitoring at home may hold the key to blood pressure control in all age groups. Self-management of chronic illnesses in general is not a new phenomenon; however, self-monitoring of blood pressure is a relatively new idea which has been met with mixed support from clinicians despite new research data advocating at home self-monitoring as an adjunct to blood pressure self-management. The literature suggests that blood pressure self-monitoring may reduce cardiovascular risk and improve health outcomes.

**Home Self-Monitoring**

Home self-monitoring (also referred to as self-monitoring, home monitoring) for the purposes of this study refers to blood pressure measurements taken in the home, away from the hospital or clinical setting with monitoring being done by the patient. Home self-monitoring has emerged as a valuable self-management tool in the diagnosis and treatment of hypertension, and its usefulness has been endorsed by many organizations, including the AHA, ASH, CNA, and the ISH (Mallick, Kanthety, Rahman, 2009). The idea of home blood pressure monitoring is not new. It was originally introduced as a means of assessing the efficacy of medication regimen in patients with cardiovascular disease. However, it was previously difficult for patients to perform home blood pressure measurements because the available measurement devices were cumbersome, error prone, expensive, and required a great deal of skill and dexterity on the part of the patient.

The first published reports of self-monitoring of blood pressure by hypertensive patients were documented in the literature more than 70 years ago by Ayman and Goldshine (1940) who in their seminal study demonstrated that home blood pressures could be as much as 30-40mm Hg lower than blood pressure readings in the physician's office. These researchers also were the first to report that the phenomenon of white-coat hypertension was reduced by home blood pressure monitoring (White et al., 1999). Since then several studies (Hond et al., 2003; Shang, Wang, Ma, Wang, & Wang, 2009; Stergiou, Karpettas, Kapoyiannis, Stefanidis, & Vazeou, 2009) have validated these findings; as well as the effects of home self-monitoring on masked hypertension. The literature on home blood pressure monitoring suggests that at home blood pressure monitoring has parity with 24-hour ambulatory blood pressure monitoring and is less expensive to perform (Mancia, 2009; Myers, 2008; Vassan, Larson, Leip, Kannel & Levy, 2001; Winegarden, 2005).

**Home Self-Monitoring Devices**

The first non-invasive semi-automatic portable blood pressure device known as the Remler M 2000 was developed in 1962 to measure ambulatory blood pressure in individuals during normal daily activities over a 24-hour period (Myers, 2008). This new technology led to the proliferation of research which disclosed the variability of an individual's blood pressure reading during a 24-hour period. Subsequent studies (Gibbs, Murray, & Beevers, 1998; Hond et al., 2003; Perloff, Sokolow & Cowan, 1983; Solkolow, Werdegar, Kain, & Hinman, 1966) have all concurred that 24- hour ambulatory blood pressure monitoring is a more accurate predictor of cardiovascular risk than blood pressure taken at the doctor's office.

Twenty four hour ambulatory blood pressure monitoring has provided invaluable information regarding both nocturnal (night-time) and diurnal (day-time) blood pressure patterns in normotensive as well as hypertensive individuals and it has contributed to the determination the effectiveness of anti-hypertensive drugs (Gibbs, Murray & Beevers, 1998). However, rapid advancement in technology over the last several decades has led to the development of newer, more accurate and user-friendly devices for blood pressure measurement both at home and in the clinical setting. Formerly, the types of devices available for blood pressure monitoring included mercury-column sphygmomanometers, aneroid (dial-type) manometers, and electronic semi-automatic or automatic manometers. Many countries including the US have banned the use of mercury devices for safety and environmental reasons. Aneroid (dial-type) devices have been used by patients at home however; they required skill and training in the use of the stethoscope, as well as frequent calibration to maintain accuracy.

Achieving accuracy of blood pressure measurements in the clinical setting remains a challenge, as it continues to be unsatisfactory and error prone. Observer bias, misreporting, terminal digit preference, rounding to a preferred digit (often zero), variable monitoring schedules, variable methods of summarizing measurements, device inaccuracies, improper technique, and inappropriate cuff and bladder size contribute to unreliable and erroneous blood pressure measurements. Regardless of the measurement device used, blood pressure will always be a variable hemodynamic phenomenon influenced by circumstances of measurement, emotion, exercise, respiration, pain, bladder distention, temperature, age, race, and diurnal variation (blood pressure is usually lowest during sleep) and other internal and external environmental conditions (Gibbs,

Murray& Beevers,1998). Nevertheless, healthcare practitioners cannot abandon the goal of achieving normal blood pressure ranges for individuals with hypertension. A routine of self-monitoring of blood pressure at home could be a key factor in improved blood pressure control and optimize self-management in individuals with high blood pressure.

The newer electronic digital automatic devices have revolutionized home blood pressure monitoring and are extremely popular with patients (Myers, 2008). Many of these devices are developed to take blood pressure from the arm, wrist or finger and measure blood pressure oscillometrically (pulsations of the artery) rather than by auscultation (Korotkoff sounds).Finger and wrist devices are reported to be less accurate and are not recommended for clinical use as they utilize the radial artery which is highly sensitive to position changes and body temperature, whereas the brachial artery is not and thus more reliable (JNC-7, 2004). Today, monitors approved for home use undergo rigorous testing according to guidelines of the American Association for the Advancement of Medical Instrumentation (AAMI) (White, et al., 1999). A major advancement in these newer devices is that they are equipped with a memory chip which allows them to display and store hundreds of blood pressure readings which can be downloaded into a computer or central server to be accessed by healthcare practitioners. This can lead to improved communication between patient and healthcare practitioner, and ultimately better blood pressure control. With the accuracy and ease of use of the current digital oscillometric devices, home blood pressure monitoring can be vital in achieving blood pressure control and avoidance of the complications associated with high blood pressure.

## Experiential Context

As a nurse educator and clinician I have had professional contact and experience with hypertensive individuals. As an aspiring researcher my experiences, passions, and beliefs have already influenced the focus of my topic and methodological predisposition. My desire to research the influences leading hypertensive middle-aged Americans to self-manage and self-monitor their blood pressure is based on my own experiences with family members who have high blood pressure, and my own journey as a nurse. My appreciation for the experiences of others in their journey with high blood pressure has led me to identify a gap in the literature on this topic.

## Definition and Categories of Hypertension

The terms *high blood pressure* and *hypertension* are used interchangeably in the literature and throughout this text. The term high blood pressure is generally regarded as a lay term whereas hypertension is considered a medical term. Both terms refer to above normal blood pressures. According to *Taber's Cyclopedic Medical Dictionary* (2001) blood pressure is defined as the force that is created when the heart pumps blood through the arteries and the resistance created by the arteries as the blood flows from the heart. The highest pressure is known as the systolic blood pressure (SBP). It is created by the contraction of the heart muscle. The lowest pressure known as the diastolic blood pressure (DBP) is created when the heart fills or relaxes. Both of these pressures are easily measured by the auscultation of the pulse with a measuring device called the sphygmomanometer which measures the auscultation of the pulse that is generated by this action of the heart. This pressure is usually measured in the upper arm over the

brachial artery, and the pressure reading is then compared to an established standard such as the JNC-7 guidelines (Appendix G) In medical terms high blood pressure is defined as a persistent rise in arterial pressure that is created as the blood flows from the heart into the arteries (JNC-7, 2004). Likewise, high blood pressure is generally defined and reported in numbers. The American Heart Association (AHA, 2009) defines high blood pressure as a reading of 140/90 and above. Healthy blood pressure is indicated by readings 120/80 and lower. Readings above 120/80 requires monitoring (AHA, 2009).

In 2004 the USDHHS national high blood pressure education program (NHBPEP) released their report on the status of blood pressure control in the US (JNC-7, 2004). Included in this report are comprehensive recommendations for the diagnosis and management of high blood pressure in the US. Since the report's release, efforts at controlling blood pressure in the US have been intensified. The JNC-7 guidelines established four categories for blood pressures as shown in Table 2, and brought to the forefront two phenomena associated with blood pressure control and diagnosis that needed attention and investigation, namely, white coat hypertension and masked hypertension. White coat hypertension is a condition in which a patient consistently has high blood pressure readings at the doctor's office or clinic, and normal blood pressure readings on 24-hour ambulatory blood pressure monitoring and home blood pressure monitoring. On the other hand the reverse condition of masked hypertension exists in individuals who have consistently normal blood pressure readings in the clinic or doctor's office and high blood pressure outside of the clinical setting. Both of these phenomena can be detected, diagnosed and treated on the basis of home blood pressure monitoring alone (Verberk, Thien, & Leeuw, 2007). Given the increases in uncontrolled blood

pressure rates, and the prognostic value of at home blood pressure self-monitoring, home monitoring has emerged as a viable self-management option in meeting the challenge of abating this chronic condition. Given the silent nature of this disease, home self-monitoring may be of significant value for those individuals with white coat and masked hypertension.

## Self-Management and Self-Monitoring in Chronic Illness

The term self-management has long been associated with chronic illness. Chronic illnesses include conditions generally considered incurable, and persisting for more than three months (Clark, 2003). Although chronic diseases are the most common and costly of all health problems in the US they are also considered among the most preventable (CDC, 2010). Approximately half of the US population is affected by some form of chronic illness, resulting in 75% of healthcare spending (CDC, 2009). Hypertension is a chronic condition affecting 41% of individuals with chronic disease (Fried, 2000). Yet hypertension is not listed among the top five chronic diseases. It is generally lumped in with and hidden under the category of cardiovascular disease which is among the top 3 chronic disease states in the US. Although the literature on chronic disease self-management is extensive, only a few studies included hypertension management, and usually in combination with other chronic conditions. There was a dearth of published studies found that investigate self-management of hypertension alone, and fewer studies addressed middle-aged hypertensive individuals. A plethora of studies exist which investigate self-management of various other chronic diseases, mainly in older adults. However, published studies investigating the self-management in middle-aged hypertensive Americans, the target group for this proposed study was sparse. This gap in

the literature supports the need for more studies involving middle-aged Americans with high blood pressure and their self-monitoring practices given the growing incidence among this population and the alarmingly silent nature of this condition.

In their seminal work on self-management of chronic illness, Corbin and Strauss (1988) defined self-management as behaviors and tasks associated with the day-to-day regulation of one's health to include the medical, behavioral, emotional and role management of health states based on an individual's perceived health problems. For the purposes of this study, self-management is defined as the day-to-day activity an individual performs to control or reduce the impact of a disease state, namely high blood pressure. Clark, (2003) described a model for self-management that involves five core skills: (1) problem solving, (2) decision making, (3) resource utilization, (4) forming healthcare provider relationships and (5) taking action towards health improvement. In addition to taking anti-hypertensive medications, individuals with hypertension are being asked to take action in implementing specific self-management behaviors or lifestyle prescriptions in order to reduce blood pressure. These actions include lifestyle modifications which have been reported to be effective in lowering blood pressure such as implementing dietary approaches to stop hypertension (DASH) in the form of a diet low in saturated fats and high in fruits and vegetables. In addition they are being asked to reduce salt intake, alcohol intake, stress cholesterol levels, and body fat. Recommendations also include performing 30 minutes of aerobic exercise five or more days a week as well as eliminating cigarette smoking. (Appel, 2003; WHO, 2007).

Bosworth et al. (2009) in a randomized trial with a two year follow-up compared the effectiveness of two self-management interventions, for improving blood pressure

control among hypertensive patients with a mean age of 61 years. Six hundred and thirty six (N=636) patients were randomized into two groups namely a bi-monthly tailored nurse-administered telephone based behavior self-management intervention group whose members performed home blood pressure monitoring, and an usual care group whose members received care provided by a primary care provider. Patients randomized into usual care received care from their primary care practitioner, did not have access to the nurse-administered behavioral intervention, and were not provided with home blood pressure monitors. Patients assigned to the nurse-administered telephone based self-management group were asked to take their blood pressures three times a week on three separate days at the same time each day and record the values in a log. This group received additional bi-monthly instructions on hypertension, risk factors and diet, medication, and lifestyle management approaches. The results showed improvement in blood pressure control in patients who were assigned to the nurse-administered behavioral intervention group compared to those patients in the usual care group. Furthermore, patients in the nurse-administered behavioral intervention group showed the greatest sustained improvement in blood pressure control throughout the study. At 24 months this group showed 11% improvement over usual care with a clinically significant reduction in blood pressures.

Botha, Du Plessis, Van Rooyen & Wissing (2002), investigated the association between self-management as measured by adherence to medical (medication) and lifestyle (diet, exercise and stress reduction) prescriptions and non-self-management in a culturally diverse group of 106 hypertensive adults over age 50 (118 females and 78 males). Patients were given a nine-item self-management questionnaire (SMQ) which

measured the extent to which the patients applied medication and lifestyle prescriptions. The results showed that only 30.6% of participants applied self-management regarding medical and lifestyle prescriptions. Of those who adhered to self- management, 33.7% applied lifestyle prescriptions to self-management practices. The majority of patients, 53% applied self-management in terms of medication management alone. The remaining 13.3% did not self-manage and applied neither lifestyle practices nor medication management. Those patients who engaged in self-management behaviors reported experiencing higher levels of psychosocial well-being, fewer medication side effects, and a high degree of doctor patient-fit as measured by the sense of coherence scale (SOC) a 29 item self-report questionnaire measuring comprehensibility, manageability, and meaningfulness.

Despite the emerging new paradigm of collaborative self-management of chronic illnesses such as hypertension, the literature suggests primary care physicians (PCP) are reluctant to encourage self-management in their patients. Using a grounded theory approach, Blakeman, Macdonald, Bower, Gately, & Chew-Graham (2006), interviewed 16 general practice physicians (GPs) regarding the facilitation of self-management in patients with chronic disease. The study showed that although all the GPs valued increasing patient involvement in the management of their health, they did not regard it as a priority because of concern about giving patients too much responsibility. One GP stated, “I think it takes a lot of confidence to hand over care to a patient it's much easier to take control" (p. 411).

There is some evidence however, that patients want to self-manage their chronic disease states. Pond, Stephens & Alpass (2010) applied discourse analysis in the

examination of 60 New Zealanders in late middle age (55-70) with high blood pressure and diabetes, regarding health promotion and self-management of chronic illness. The majority of these individuals reported health and self-management to be a" self-project" requiring watching and monitoring. Participants in the study attended to diet, exercise and mental stimulation and viewed themselves as “virtuous citizens" and described self-management as a moral duty. Those individuals who did not adhere to self-management practices viewed aging as inevitable and accepted ill health as natural to the aging process. They viewed health as subject to forces beyond their control, a consequence of luck and genetics. According to the WHO, improving patient self-management of chronic diseases including high blood pressure would have a far greater impact on the health of the population than any improvement in specific medical treatments (WHO, 2003).

In summary these studies show that individuals who self-manage experienced improved outcomes in their health and well-being. These studies also showed that specialized hypertension care that incorporates blood pressure self-monitoring may result in effective and sustained blood pressure control. There is evidence that home self-management is an effective tool in the management of various chronic illness states and is rapidly becoming a major part of mainstream health care system despite resistance from some clinicians. Taking responsibility for one’s health is influenced by many factors, including socio-cultural norms and patterns. However, chronic diseases such as high blood pressure affect individuals across race, socio-economic conditions and cultural boundaries.

Establishing collaborative partnerships between patients and clinicians can influence changes in behavior, health status, and healthcare utilization regardless of race

or culture. Self-management which includes at home self-monitoring may yet offer the best hope of reducing the chronic disease burden and improving the quality of life for individuals with high blood pressure.

**Influences Related to Self-Management**

While Americans over 65 are experiencing a decline in disability, middle-aged Americans 50-64 are experiencing an increase in disability due to health problems originating in their 30's and 40's (Martin, Freedman, Schoeni, & Andreski , 2010). This finding supports the need for understanding the influences that promote self-management behaviors in this population in order to reverse this alarming trend. Self-management studies have identified the following factors as influencing patients' success with executing self-management behaviors such as home blood pressure monitoring. These are: (a) patient related factors such as beliefs, expectations, knowledge and skill; (b) socio/economic factors such as family, community, and other social support resources, including access to care and medications; (c) condition related factors that include severity, duration, symptom burden, number and types of illnesses and complicating factors; (d) treatment factors such as complexity, duration and side effects of treatment; and (e) factors related to the healthcare team, physician, patient, staff interactions, and the healthcare organizations (Navuluri, 2001; Newman, 2004).

In a qualitative study Weaver, Murtagh, and Thompson (2006) explored the attitudes and perceptions of patients newly diagnosed with high blood pressure regarding associated risk factors. The sample consisted of 11 patients (six men and five women ages 41-82) who were diagnosed with high blood pressure within the previous six

months. Using an 11 question interview format, personal narratives were derived. Participants described their experiences, and their responses fell in two categories, those who were risk deniers and those who were risk acceptors. Some participants (risk deniers) described themselves as not feeling at risk because they were asymptomatic. Some of the risk deniers felt that they were not at risk because they had taken steps such as lifestyle changes to avoid getting the diagnosis of high blood pressure. Others accepted their risk as a normal part of everyday life and therefore unavoidable. For participants who were risk deniers; receiving the diagnosis of high blood pressure created emotional conflict when there was a family history of heart disease, coupled with the reality of a diagnosis of high blood pressure.

According to Clark (2003) theoretical model, patients want to be in control of their health and are influenced strongly by personal, behavioral and environmental factors. In addition, patients may also be influenced by cognitions, emotions, social environment, knowledge, and significant others as well as their perceived risks. Weiss, Montgomery, Fahey, and Peters (2004) explored patients' perception of the usefulness of educational tools and decision aids, in influencing newly-diagnosed hypertensive patients' involvement in decisions about their healthcare. Semi-structured interviews were conducted with 15 newly diagnosed hypertensive adults to explore their perceptions of a decision analytic decision aid, and their views regarding accessing clinical information. The study found that patients who were given tools to assist in decision making reported lower decisional conflict, greater knowledge about high blood pressure, and no increase in anxiety compared to those who did not receive decision aids.

Some patients reported that having tools such as pamphlets and computerized decision aids influenced them to discuss issues about their blood pressure with their physician. On the other hand, some patients reported “doing what they are told” because the physician did not seem to have enough time. Others reported discussing high blood pressure with their friends or “surfing” the web for information as opposed to discussing their condition with their physician. Several participants stated that they were reticent to follow their doctor’s recommendations until they had done their own investigations. In addition, the study found that respondents viewed discussing their treatment with their practitioner and finding more information about their treatment from the internet and other sources, were two separate and distinct processes.

Having a family history of hypertension and cardiovascular disease has also been shown to also provide a powerful influence in terms of risk for some individuals to take steps towards self-management and self-monitoring. Using a qualitative approach, Thorne, Paterson and Russell (2003), investigated the day to day experiences with self-management decisions of patients with diabetes, HIV and multiple sclerosis. The study involved 22 adult participants who were deemed experts in self-management by their clinicians. The dominant theme that emerged among participants who represented each of their disease categories was a conscious decision to gain "control" of the management of their disease after they recognized that their disease was chronic and would persist as a feature of their remaining lives. They described being in control as living as "normally" as possible. This involved learning about the disease, its treatment and their bodies responses to the disease by their experience of the effects of the disease.

In summary, the above studies shed light on patients' subjective understanding of their disease, influences related to risks, and responsibilities regarding self-management. These studies support the need for further exploration and inquiry into the influences of middle-aged hypertensive Americans self-management and self-monitoring behaviors. They also acknowledge that patients may go through a period of denial and conflicting feelings before fully accepting the ramifications of the diagnosis of a chronic illness such as high blood pressure and the resulting responsibility of management and self-monitoring. Although management and self-monitoring may be unique for each individual, accepting the diagnosis is critical to making a cognitive decision on managing and self-monitoring of blood pressure. The literature indicates that knowing one's risks, strongly influences ones desire to take control of one's health, when one has the appropriate resources to do so.

**Home Monitoring (Self-Monitoring)**

The monitoring of blood pressure at home by patients (non-clinical setting) also referred to in the literature as self-monitoring or home self-monitoring, is becoming increasingly popular because of the development and wide spread availability of automatic blood pressure measuring devices. Self-monitoring is an adjunct to self-management for patients with high blood pressure (White et.al., 1999). Currently numerous devices and methods are available to assist individuals with at home management and self-monitoring of various health and illness conditions chronic and otherwise. The long list of devices includes but are not limited to: (a) blood glucose monitors, (b) scales to measure body weight, (c) portable coagulometers used by patient to self-adjust anti-coagulant therapy (Schulman, 2005), (d) peak expiratory flow devices

to help individuals with asthma make health management decisions (Powell & Gibson, 2005), (e) thermometers to measure body temperature, (f) infrared temperature sensors to measure lower extremity temperature to prevent ulcerations (Lavery et al., 2004), (g) ventilation devices such as continuous positive airway pressure monitors (CPAP), and oxygen delivery systems.

The optimal schedule for at home blood pressure monitoring, as recommended by the European Society of Hypertension (ESH) and endorsed by the AHA and the ASH, is two daily readings, one morning and one evening over a period of seven days in order to establish prognostic value in terms of cardiovascular risk (Stergiou, Nasothimiou, Kalogeropoulos, Pantazis, & Baibas, 2010). However, other studies have ascertained (Sega, et al., 2005) that a single blood pressure reading has prognostic value in determining cardiovascular risk. This finding has support of all the hypertension societies. For the purposes of this study, participants who self-monitor their blood pressure once a month is adequate to establish a routine of self-monitoring. Canzanello, Jensen, Schwartz, Worra, & Klein, (2005); Chobanian, et al., (2003); Hond et al., (2003); Pickering et al., (2008); Shang, Wang, Ma, Wang &Wang, (2009); and Yarrows, Julius & Pickering,(2000) all support routine at home blood pressure self-monitoring as a measure to reduce cardiovascular risk among hypertensive individuals.

Hozawa, Shimazu, Kuriyama and Tsuji, (2006) in a long term study, investigated whether incorporating home blood pressure measurement and tailored advice into the primary healthcare system improved hypertension management among untreated hypertensive individuals who were diagnosed during a community screening of all residents (3879) age 40 and older in the rural town of Nishiaizu, Japan. Residents were

given a baseline self-administered questionnaire regarding their awareness of hypertension and current hypertension treatment. A total of 1141 residents had high blood pressure (140/90 or above) on screening and were not taking medication for blood pressure. The remaining 1698 residents were normotensive (BP below140/90). All screened participants were given the results of their screening blood pressure. They were given information on how to modify their lifestyle and instructed to consult with their physician.

The district of Onomoto (one of five districts) in the town of Nishiaizu was selected for the home blood pressure self-monitoring intervention. Previously screened residents (468) of the other four districts were the control group. All residents of Onomoto (1714) age 30 and older were also asked to measure their blood pressure at home for a month and were instructed to take action based on blood pressure level; 76% measured their blood pressure at home. Among the initial study subjects aged 40 and older who were hypertensive and not taking medication 120 from the district of Onomoto were asked to perform home blood pressure monitoring for one month. Of these 106 (88%) complied and became the intervention group. They received instructions in the use of a digital semi-automatic blood pressure device validated for home self-monitoring. They were asked to monitor their blood pressure every morning and every evening for 30 days. Participants in the control group (residents of the other four districts) were only given the results of their screening blood pressure and asked to consult with their personal physician. They also received written instructions on how to modify their lifestyle if they were hypertensive. All physicians in the towns were provided with

information on the utility of home blood pressure monitoring however; they did not receive advice regarding hypertension treatment.

After the 30 days of home blood pressure monitoring, the results were analyzed using *t*-test, or chi-squared test to evaluate the probability of a difference between the control and intervention group at baseline. Statistical significance was established at $P < 0.05$. Using a follow-up questionnaire, the intervention group one year later, showed a higher rate of initiating antihypertensive medication (30.9%) compared with the control group (23.9%). More than 60% of the control group did not take any action against hypertension and 76% were not taking antihypertensive medication. The researchers concluded that home blood pressure monitoring identified those individuals who needed treatment and improved the proportion of participants receiving antihypertensive treatment. This study supports the value of blood pressure self-monitoring in identifying above normal blood pressure readings that may have gone undiagnosed and untreated if one solely relies on once-yearly office blood pressure evaluation.

Cappucio, Kerry, Forbes, & Donald, (2004) in a meta-analysis of 18 randomized controlled trials examined and compared at home self-blood pressure monitoring in 1359 hypertensives with blood pressure above target goals and a control group of 1355 hypertensive individuals in a healthcare system. The purpose of the study was to determine the effect of home blood pressure monitoring on blood pressure control and the proportion of people who achieved target blood pressure goals. They extracted data using a random effects model and the results showed systolic and diastolic blood pressures were significantly (95% confidence interval) lower in individuals who monitored their blood pressure at home compared to those who had standard office blood pressure

measurement by a healthcare provider. These studies were not limited to the US and included participants whose ages ranged from 16-80 years old. According to the literature it is unclear why a difference exists between at home monitoring and standard monitoring in a clinic or other medical setting. Further research is needed to clarify these findings. Nevertheless, home monitoring is likely to contribute to important reduction in vascular complications and the chronic disease burden related high blood pressure due to the early detection of above normal blood pressures.

Bray, Holder, Mant, and McManus (2010), in an effort to evaluate systolic and diastolic reduction as well as the achievement of target blood pressure associated with self-monitoring conducted a systematic review and meta-analysis of 25 eligible randomized controlled trials involving more than 6,000 adult patients. They found that both systolic and diastolic blood pressures were significantly reduced in patients who self-monitored at home compared to those with office blood pressure monitoring, also known as standard care. Self-monitoring at home was shown to increase the chances of meeting targeted blood pressure goals for individuals with high blood pressure. Research studies suggest that diabetic patients, with the feedback they receive from home glucose self-monitoring, are able to make management decisions regarding glucose control and their personal health in the regulation of diabetes (Mossavar-Rahmani et al., 2004; Renard, 2005). They are able to share information regarding blood glucose values with healthcare clinicians who can then offer feedback, and guidance towards healthier lifestyle decisions (Bergenstal & Gavin, 2005; Davidson, 2005). The blood pressure goals for diabetics are by far stricter than for non-diabetics. According to Saydah, Fradkin, & Cowie, (2004) stricter blood pressure control in diabetics leads to more than three times

greater risk reduction than intensive glucose control and less than 40% of diabetics achieve target blood pressure goals of <130/80. Unfortunately, for patients with high blood pressure there is no equivalent of the Hemoglobin A1C that can definitively establish the effectiveness of blood pressure control at home. For normotensive as well as hypertensive patients, adherence to blood pressure self-monitoring over time could improve health outcomes when average readings are calculated to determine cardiovascular risk and timely treatment of above normal pressures are implemented. Self-monitoring may help individuals achieve their target blood pressure goals and improve health outcomes in middle aged-Americans (Bray, Holder, Mant, & McManus, 2010).

The literature suggests, that healthcare provider attitudes towards blood pressure self-monitoring are inconsistent and variable (Blakeman, Macdonald, Bower, Gately & Chew-Graham, 2006; Cheng, Studdiford, Diamond, James, & Chambers, 2003) and some clinicians are reluctant to recommend at home blood pressure monitoring to their patients. Yet, a recent national internet survey of patients with hypertension reported 60% owned a blood pressure monitor and 50% of patients were advised by their healthcare practitioner to monitor their blood pressure at home (Moser & Franklin, 2007). Researchers Viera, Cohen, Mitchell, and Sloane (2008) surveyed a cohort of primary care adult patients (n=530) mean age 59.6 in a 24-hour office practice network in North Carolina regarding their use of home blood pressure monitoring. Results showed more than 43% were currently using a home blood pressure monitoring device. They also found that patients who scored within the 90th percentile on knowledge of high blood pressure were more likely to monitor their blood pressure at home.

In summary, although none of the studies discussed focused on the population of this inquiry, as it relates to middle-aged hypertensive Americans who manage and self-monitor their blood pressure at home, it is clear that at-home monitoring is being practiced for a wide variety of medical conditions and in some conditions it has led to improved health outcomes such as blood sugar control in diabetics. One of the known benefits of self-monitoring is the increased involvement of individuals in their own care and treatment. The advantages of blood pressure self-monitoring are that it provides multiple measurements in the patient's own day to day environment under the conditions of his or her everyday life. When mean blood pressure readings are calculated and evaluated it may provide a more accurate picture of blood pressure fluctuations and cardiovascular risk over time and may likely become the indicator of blood pressure control for hypertensive individuals. Despite the rapid increases in the sales of home blood pressure monitoring devices no data was discovered on how many patients in the US are actually engaged in home blood pressure self-monitoring and what influences them to self-monitor. The purpose of this study is to explore the influences that lead middle-aged Americans to manage and self-monitor their blood pressure at home. Ultimately, the proper diagnosis and management of high blood pressure is dependent on the accurate measurement of blood pressure whether in the office or at home.

**Middle Age**

Although the onset of hypertension commonly occurs in the middle years, little is known about what influences middle-aged hypertensive Americans to manage and self-monitor their blood pressure at home or the meaning they ascribe to self-monitoring practices. Psychologist Erik Erikson described the physical, emotional and psychological

stages of human development as they relate to specific tasks or issues accompanying each stage of development. Middle-age is considered the period of time between ages 40-65 and represents the most productive years in human development. The psychosocial challenges at this time of life are generativity vs. stagnation or self-absorption (Erikson, 1982). This period of psychosocial development is marked by productivity where satisfaction is derived through career, family, and civic involvement. Ackerman, Zuroff, and Moskowitz (2000), describe generativity as a healthy and adaptive state that is indispensable for individuals in midlife as well as influential the next generation. Adverse health outcomes associated with uncontrolled blood pressure can impair productivity and affect quality of life of middle-aged individuals. Those who fail to achieve generativity in midlife become stagnant and self-absorbed according to Erikson. Stagnation is characterized as a maladaptive regression to earlier stages of development, leaving individuals with a feeling of un-fulfillment (Erikson, 1982).

Player, King, Mainous, and Geesey (2007), in a prospective epidemiologic study of 15,792 men and women, explored the influence of psychosocial stress on progression to hypertension and coronary heart disease (CHD) in middle-aged Americans (45-64) with pre-hypertension. Individuals were recruited by random probability sampling from population list and area sampling in four communities across the US. Three standardized self-administered psychosocial questionnaires were administered namely, (a) the Lubben Social Network Scale, that measures social support, (b) Maastricht Questionnaire that measures long-term psychosocial stress and (c) Spielberger Trait Anger Scale that assesses levels of anger and hostility. The findings showed that trait anger and long term stress were associated with an increased risk of progressing from pre-hypertension to

hypertension in males in this population. The middle years, though productive, are also a stressful time as many individuals in today's society who may be caring for children are also caring for aging parents. Middle-aged individuals may also be facing economic uncertainty in light of a globally depressed economy. These findings elucidate the need for blood pressure management and self-monitoring in this population in order to reduce disease risk through early detection and blood pressure control.

Levenstein, Smith, George, and Kaplan (2001), in a longitudinal study investigated the behavioral, social, psychological and economic influences on health and the development of hypertension in 3158 men and 3770 women who were hypertension free at the start of the study. Using stratified random sampling of adults in single community, participants there were given questionnaires regarding high blood pressure in 1965, 1974 and 1994 consecutively. They were also given a list of medical conditions and asked if they had any of the conditions listed and if they were taking medications for the listed conditions. By 1994 those individuals who identified as taking prescribed anti-hypertensive medication were considered hypertensive. The effects of baseline psychosocial, behavioral, and socioeconomic factors on the incidence of treated hypertension were examined using multiple logistic regressions. The analysis of this study and conclusions drawn from the results showed that, the threat or reality of unemployment, job strain, social alienation, and psychological distress independent of demographic and behavioral risk factors increased the likelihood of developing hypertension regardless of age. Furthermore, all the psychosocial factors investigated, except for unemployment, were significant predictors of hypertension in age-adjusted analyses for men and women. However, unemployment and job stress were predictive of

hypertension for men in sex-specific analyses. In the landmark Farmington Heart Study, which spans three generations of participants from 1948 to today, anxiety was found to be predictive of hypertension over a 20 year period in middle-aged men (Markovitz, Matthews, Kannel, Cobb & D'Agostino, 1993)

In summary, the middle years are an important developmental milestone associated with increased stress for many Americans. Many are making plans for retirement, managing family and work life, caring for children, grandchildren or aging parents. This may leave little time to focus on self-management and health promotion behaviors. Yet, health and wellness are critical at this time given the responsibilities of middle age. Managing high blood pressure in the middle years can prevent serious health consequences relating to cardiovascular disease, and stroke in the later years. Home blood pressure monitoring can assist these individuals in early detection of high blood pressure by influencing them to seek treatment and implement lifestyle changes as part of disease self-management. Blood pressure management that includes home self-monitoring may empower middle-aged Americans to feel that life's demands are comprehensible and manageable when given the tools to take control of their health.

**Researcher Bias**

According to Creswell (2007) while conducting qualitative research it is necessary to clarify any researcher bias that may exist prior to the study so that the researcher's position and assumptions are understood by the reader. In keeping with grounded theory methodology, the first step in reducing bias is the approach to the literature review. The initial literature review revealed a preponderance of clinical trials.

However, no studies addressed the influences leading middle-aged Americans to manage and self-monitor their blood pressure at home. Therefore, the intent of this study is to access relevant literature based on the data collection findings from the participant interviews. Secondly, researcher bias will be reduced by separating this researcher's personal opinion memos during analysis. Personal thoughts and feelings about participants' responses, especially as they relate to pre-existing understandings regarding self-monitoring, will be documented in memo format. Because grounded theory researchers immerse themselves into the data, this raises questions regarding the ability of the researcher to maintain a balance between objectivity and sensitivity. Objectivity is necessary to arrive at an accurate interpretation and sensitivity is necessary in order to recognize nuances and meaning in data. This is not to be confused with subjectivity (bias) which is usually present in all forms of research (Strauss & Corbin, 1998). Therefore, objectivity and sensitivity are necessary, while subjectivity (bias) should be minimized. Methods to reduce bias but retain sensitivity may be implemented by validating the researcher's interpretation against alternative explanations. Assumptions will be validated with respondents against incoming data. Periodically, the researcher may stop analysis in order to review the data anew and question what is occurring. (Strauss & Corbin, 1998, p.45). The use of memos will help keep track of personal biases, and reflect on how these biases may be influencing the interpretation of data.

**Chapter Summary**

In this chapter the review of the literature focused on defining high blood pressure, exploring influences for self-management and self-monitoring in the context of chronic illness, as well as providing a clear definition of self-management and self-

monitoring as it relates to the phenomenon under study. The history of home blood pressure monitoring, and the devices used were presented in terms of clinical usefulness and accuracy of blood pressure measurements. The developmental task of middle-aged adults was presented to better outline the challenges of middle-age adults and the importance of self-management and self- monitoring of blood pressure in this life stage. Understanding the underlying processes that influence management and self-monitoring of blood pressure can lead to developing interventions specific to this chronic disease. A grounded theory approach to this study can illuminate how people with high blood pressure are influenced to manage their blood pressure at home. It could also provide valuable insight about the meaning of high blood pressure in their daily lives. The strength of grounded theory lies in its analytic power to theorize how meanings, actions and social structures are constructed (Charmaz, 2006).

# Chapter Three

# Methods

## Introduction

The purpose of this qualitative study is to explore and understand the critical influences that lead middle-aged hypertensive Americans to manage and self-monitor their blood pressure at home. The literature is sparse regarding what hypertensive middle-age Americans think, feel or experience regarding blood pressure self-management and self-monitoring, as well as what influences them to engage in home blood pressure monitoring. Qualitative research methods, such as grounded theory, which utilize in-depth, face-to-face interviews, are the best ways to collect and analyze data about complex phenomena such as feelings, thought processes, and experiences (Creswell, 2007). Glaser (1998) stated that "the goal of grounded theory is to generate a theory that accounts for a pattern of behavior which is relevant and problematic for those involved" (p.93). The relevancy of management and home self-monitoring of blood pressure, as well as the problem of lack of blood pressure control world-wide has been well established in prior chapters. This qualitative inquiry is guided by the revised grounded theory version of Corbin and Strauss (2008).

## Research Design

Corbin and Strauss' (2008) grounded theory model provides guidelines for conducting and applying grounded theory research. These current guidelines are considered more flexible than previous guidelines (Strauss and Corbin, 1990, 1998) and acknowledge that researchers may use grounded theory not only to build theory, but also to produce useful descriptive research. Currently, there are three dominant grounded

theory approaches in the literature. The classic approach was originally developed in the 1960's by Barney Glaser and Anselm Strauss, two sociology professors who used the inductive approach to discover the underpinnings of patients' behaviors related to the dying process. This classic version is still endorsed by Glaser and is referred to as the Glaserian (classic) method of grounded theory. Strauss and Corbin, (1990, 1998) later collaborated and developed a modified version of the original grounded theory of Glaser and Strauss, providing clear guidelines and structure for constructing grounded theory research where none had previously existed. The earlier version of Strauss and Corbin (1990, 1998) has evolved into the current Corbin and Strauss (2008) version after much criticism of their prior version being too rigid and resulted in forced as opposed to emergent, data. This current version endorses and recognizes the contributions of other models while providing steps to the research process. The third model espoused by Charmaz (2006) emphasizes researcher and participant co-constructing meaning from data but provides no clear steps for the novice researcher in applying this constructivist approach to real research. Although there are methodological similarities and differences between these grounded theory descriptions, the main distinctions lie in how the analytic processes are described and used (Walker & Myrick, 2006). In addition, all three methods use participant observation and in-depth interviews, simultaneous data collection and analysis, data coding, memo writing and sampling techniques to refine the emerging theoretical framework.

Corbin and Strauss (2008) grounded theory method was selected over other design methods due to the detailed and clear articulations by these researchers on how to conduct grounded theory research where data is systematically obtained and analyzed

using the constant comparative method. The steps this researcher used to guide this research were adapted from (Corbin and Strauss, 2008) version and are listed in table 2. This approach was deemed the most appropriate qualitative design method to explore the critical influences of middle-aged hypertensive Americans who manage and self-monitor their blood pressure at home because this iterative process has proven useful in studying persons adjusting to a chronic illness, and hypertension is a chronic illness. In their landmark book, *Unending Work and Care: Managing Chronic Illness at Home*, Corbin and Strauss (1988) were the first to describe chronic illness experiences from the perspective of the chronically ill and those closest to them. Their work led to the discovery and understanding of the processes of self-management in chronic illnesses. Since then, many disciplines have used this method to arrive at theories regarding various psycho-social phenomena and health related matters. Findings of this study may illuminate the processes and critical influences that motivate middle-aged Americans to manage and self-monitor their blood pressure leading to a theory of management and self-monitoring for this population and this specific health condition.

Little is known about the shared meaning and the critical influences of middle-age Americans living with and managing high blood pressure, an often silent disease. This method offered an opportunity to explore and discover the meaning, and capture the experiences of this population. Despite competing priorities associated with this stage of life, these individuals may be actively engaged in health promoting behaviors including the management and monitoring their blood pressure regularly. Also, this method offered a realistic option of conducting a literature review prior to the start of the study whereas the others did not. Furthermore, the coding process outlined by Corbin and Strauss (2008)

allows for the generation of categories and identification of the links between them with a clear process for moving from open to axial and selective coding. Concepts, categories and sub-categories are continually subject to questions and comparisons with the goal of identifying the core category and linkages. From the perspective of symbolic interactionism, where the meaning people give to their situation are derived from shared interaction in their social world, individuals with high blood pressure who self-monitor may share similar experiences. How these experiences influence their behavior and give meaning to their lives are critical to this study. Identifying those meanings may lead to theory development, which is the goal of grounded theory. This method also supports the pragmatist point of view that new knowledge and truth cannot be developed from existing theories, but rather from inductive data derived from the context of the social world of the study participants.

Finally, grounded theory is specifically useful in areas of study where little or no research has been done (Corbin and Strauss, 2008) and (Stern, 1980) as is the case with middle-aged hypertensive Americans. There are no explicit theories on blood pressure management and self-monitoring in the population under study; therefore, in the analysis of this study a theory could be developed about the critical influences and psycho-social processes as it relates to this population. Theory development is a rigorous process; therefore, choosing a tradition that has a systematic approach can prove to be highly beneficial to the novice researcher (Strauss & Corbin, 1998). Table 2 summarizes the steps and rationale this researcher used in conducting this study.

Table 2. Developed by McCurdy, R. (2013). Grounded Theory Steps and Rationale

| Steps | Phase | Activity | Rationale |
|---|---|---|---|
| Step One | Research Design | Define research questions review literature, and seek approval and access. Select sampling techniques (cases). | Focus efforts and eliminate irrelevant variations. |
| Step Two | Data Collection | Develop interview questions. Identify first data source and do Initial face-to-face interview. Modify data collection instrument and interview questions as needed based on initial data collection. Identify future subjects and data sources. | Strengthen grounding of theory development. |
| Step Three | Data Analysis | Open coding: Breaking the data apart. Search line by line for words, phrases, and themes. Identify and label as many concepts as possible (first case and subsequent cases). Write memos and assign number and title. Do second interview and compare concepts from initial data. | Speeds analysis of emergent themes. Allows examination of process. Facilitates further data analysis. Exploration of data for all possibilities and provisional codes. Identify in-vivo codes. |
| | | Axial coding: Putting the data back together by relating minor concepts from first and second interview data and subsequent interviews. Identify sub-categories, group similar concepts together. Identify shared properties between codes.<br><br>Conditional Consequential Matrix (CCM).<br><br>Write theoretical and methodical memos.<br><br>Selective coding: Integrate major categories and sub-categories across all cases. Refine concepts write methodological and theoretical memos. Reassemble coded data. Identify core variable. Ask questions of data. Sort and integrate memos. Diagram what's occurring with the data. | Establish concepts, categories, properties and dimensions and connections between cases categories and sub-categories.<br><br>Establish foundation for theoretical framework. This constant comparative method leads to refinement of categories.<br><br>Produces rich, thick descriptions of participants' experiences in their own words for a descriptive study if theory development not attainable. Identify core category. |
| Step Four | Theory Building | Establish core category and relate context (structure) and process (action/interaction) among categories, establish theoretical sensitivity. Examine theoretical memos, question data, and explore literature. Diagram and assemble coded data. | Refines theory, confirms, extends and sharpens the theoretical framework. |
| Step Five | Theory Integration and Closure | To further refine theory look for gaps in logic. Compare emergent theory with extant literature. Re-examine earlier data. | Validate theory, end of process. Theoretical saturation achieved. |
| Step Six | Write Research Report | Integrate analysis of findings. | Disseminate findings, new knowledge. |

**Sample and Setting**

The purpose of sampling in general is to select a population that is representative of the patterns of the target population however; qualitative research is not concerned with generalizing from a sample to a large population of people. Sample selection in grounded theory is aimed at collecting rich, thick data with deep descriptions to inform the understanding of concepts and provide a broader theoretical understanding (Norwood, 2010). This study was conducted using purposive, convenience and snowball sampling techniques. In purposive sampling, the researcher selects participants who are judged to be the best sources of information for the domain under study (Burns & Grove, 2001; Munhall, 2007). Furthermore, Creswell (2003) agrees that purposive samples involve participants who are experts in the area of the phenomenon in question, namely middle-aged hypertensive Americans who are active in managing and self-monitoring their blood pressure. Convenience sampling is a process of selecting participants that are readily accessible, such as the six individuals at the wellness centers, who met the inclusion criteria for the study. It was anticipated that participants selected for the study may want to refer others to participate in the study. This process is known as snowball sampling and was also be utilized in the study. Finally, theoretical sampling procedures were utilized during the data collection and analysis process and differ from the initial sampling procedures previously discussed. Corbin & Strauss, (2008) defines theoretical sampling as:

> A method of data collection based on concepts/themes derived from data. The purpose of theoretical sampling is to collect data from places, people, and events that will maximize opportunities to develop concepts in terms of their properties and dimensions, uncover variations, and identify relationships between concepts (p.143).

Theoretical sampling differs from the initial sampling of participants for the study in that after the group of study participants was interviewed individually and data were analyzed, and the theoretical categories developed, this researcher further examined the data in order to refine emerging theories. This is the essence of theoretical sampling. While initial sampling tells the researcher where to start, theoretical sampling directs the researcher on where to go (Charmaz, 2006). The theoretical sampling process occurred simultaneously with data collection and coding analysis and guided the way to theory development. All participants were chosen based on the inclusion criteria established for this study.

**Sample Size**

The sample consisted of 13 middle-aged Americans who had been diagnosed with high blood pressure or who were on blood pressure medication. Participants were between the ages of 40-65 and self-reported that they managed and self-monitored their blood pressure at home at least once a month. All participants were fluent in English, gave informed consent to take part in the face-to-face audio-taped initial interview and follow-up interview. There are no specific guidelines or consensus for sample size in qualitative research, and in grounded theory a set number of participants cannot be

predetermined. According to Creswell, (1998) a grounded theory research sample size of 20-30 participants is adequate for data saturation. Charmaz (2006) on the other hand suggests sample size will vary for each study, and should be based on "theoretical completeness" resulting from data saturation where no new information or patterns emerge (p.114) not on a specific number. In this study, data was collected until saturation and adequate variability was reached in all emergent categories (Glaser, 1998). Saturation was achieved after 11 interviews and two additional interviews were done to confirm that no new information would emerge.

**Setting**

This study was conducted in South Florida, one of the most populous metropolitan areas in the Southeastern United States according to the US census data (US Census, 2000). The area consists of a multi-lingual, multi-ethnic population, where Asians, Europeans, Latin Americans and Caribbean persons make up the dominant foreign culture. Fifty one percent of the population is foreign born, and in Miami-Dade more than 50% of the population is of Hispanic heritage (US Census, 2000). Originally, the study sample was expected to be derived from enrollees at two medical wellness centers affiliated with an urban university located in South Florida. One wellness center is located on the medical campus of the university and the other is located on the main campus. Both centers are open to students, employees, alumni and associates of the university. According to G. Halderman, (personal communication, October 17, 2011) as of September 2011 the enrollment figures were 2,600 non-student members, and 13,000 student members at the main campus. The wellness center located on the medical campus has 3,000 members. Besides physical fitness programs, both wellness centers offer

classes such as meditation, stress management, smoking cessation, cooking classes, emergency care courses and nutrition education. Many of the programs are free with paid membership to the wellness center. The wellness center's aim is to provide activities in assisting individuals' to achieve optimal health by way of "striking a balance" in relation to the following eight dimensions of wellness: (1) physical wellness, (2) intellectual wellness, (3) emotional wellness, (4) nutritional wellness, (5) social wellness, (6) spiritual wellness, (7) occupational wellness and (8) global wellness. The wellness centers are also affiliated with the university's division of complementary and alternative medicine and the university's clinical research center which provides centralized clinical research infrastructure to benefit investigators across multiple disciplines. This researcher has no affiliation with the wellness centers and is not a member of either center. During the study only six participants responded to the flyers and were recruited from the wellness centers. The study was conducted when many of the employees of the university were on summer break and this may have contributed to their low participation in the study.

### Access and Recruitment of Sample

Initially a site-based approach was utilized in recruiting participants for this study. To obtain access, a formal letter was sent to the administrators requesting permission to post flyers on bulletin boards throughout the centers and at strategic locations throughout the facility in order to recruit participants for the study (see Appendix C). Permission was granted from the administrators of the university wellness centers for the recruitment of participants for the study (see Appendix B). Flyers announcing the study, including contact information for the researcher (email address and phone number) was posted in

strategic locations throughout the wellness centers so that interested individuals could contact the researcher and be screened for eligibility to participate in the study.

**Recruitment Procedures**

The six participants who responded to the flyer by contacting the researcher via email or by phone were screened for study eligibility either by phone or by email to assure that they meet the study inclusion criteria. All other participants who were referred to the study by acquaintances of the researcher and other participants were also screened for eligibility. Once it was established that an individual met the study inclusion criteria an appointment was scheduled at a mutually agreed upon date, place and time to obtain informed consent, complete IRB documents and demographic data (see Appendices A and E). Once informed consent was obtained the face-to-face interview commenced. All interviews were conducted in a mutually agreed on private location that was free from distractions. The initial face-to-face interview lasted approximately 60 minutes. Most of the interviews were conducted at the home or office of the participants, one interview was conducted at the researcher's residence.

**Member Checking**

In keeping with grounded theory methodology a second face-to-face meeting was scheduled to confirm and clarify the transcription of the first interview. Therefore transcripts were reviewed with participants for member checking and validation. Once the initial face-to-face interviews and member checking were completed, each participant received a $5.00 gift card as a token of appreciation for their participation in the study. At the end of data collection three participants were randomly chosen to review the findings

of the study in order to confirm the categories that were developed and lend credibility to the findings of the study.

**Inclusion Criteria**

The sample consisted of an adequate number of males (8) and females (5) between the ages of 40-65 who report that they-manage and self-monitor their blood pressure at varying frequencies with a minimum of once a month. Participants who self-monitor their blood pressure a minimum of once monthly were sufficient for the purposes of this study to establish a routine of self-monitoring. All participants monitored their own blood pressure. Participants actively performing home self-blood pressure monitoring provided the best descriptions for this study. In addition, individuals are fluent in English and have a diagnosis of hypertension. Individuals on prescribed blood pressure medication were deemed to have high blood pressure and were included in the study.

**Exclusion Criteria**

Individuals who did not fit the aforementioned inclusion criteria were excluded from participating in the study. Participants who are non-English speaking, less than 40 years old or more than 65 years of age were excluded from the study. Individuals who did not have high blood pressure or who were not on medication for high blood pressure were excluded from the study. Individuals who monitor their blood pressure less than once monthly were excluded from the study. In keeping with the aims of this study and the definition of home self-monitoring participants who only monitor their blood pressure

outside the home, or who have others monitor their blood pressure were excluded from the study. Table 4 summarizes the inclusion and exclusion criteria for this study.

Table 3

Summary of Inclusion and Exclusion Criteria

| Inclusion Criteria | Exclusion Criteria |
|---|---|
| Males and females between the ages of 40-65 | Under 40 years of age and over 65 years of age |
| Diagnosis of high blood pressure or taking medication for high blood pressure | Do not have high blood pressure or not on medication for high blood pressure |
| Self-monitor blood pressure at least once a month at home | Self-monitor blood pressure less than once a month. Monitor blood pressure outside the home |
| English speaking | Non-English speaking |

## Ethical Considerations/Protection of Human Subjects

Prior to beginning the study, approval for the study was obtained from Barry University Institutional Review Board (IRB). Access was granted from the administrators of the wellness centers to recruit participants for the study (see Appendix B). The informed consent explained in lay language (1) the purpose of the study, (2) how long the research is expected to last, (3) any risks, discomfort and benefits to the participant, (3) and how their privacy and confidentiality will be will be maintained. In addition the informed consent delineated all procedures associated with their participation in the study. Once the informed consent was executed and all signatures obtained, a copy was given to the participant. Prior to each face-to-face interview this researcher again reviewed the informed consent with each participant. Participants were informed of the

confidentiality process for the data collection, reporting and storage. They were informed that once consent forms are signed and demographic data completed, a file would be established. At this time participants were reminded of the second meeting for member checking to confirm transcription data. Participants were also asked to select a pseudonym for confidentiality purposes. If a participant were to decline to select a pseudonym, one would be assigned by the researcher; however, all participants agreed to select pseudonym of their choice for the study. The electronic transcription and hard copy paper version of the transcription were assigned an identification number and pseudonym. The transcribed copy of the recordings and signed informed consent forms will be kept locked in a file cabinet for a period of five years at the home of the researcher, and then will be destroyed. The voice file recordings and transcribed electronic version of the interview will be erased at the end of the study. All information was entered on finger print protected lap top and was kept locked in the researcher's office and all remaining data will be destroyed after five years.

**Data Collection Procedures**

Data collection commenced after approval for the study was obtained from the Barry University IRB and the receipt of signed consent forms. Prior to collecting data, the informed consent was reviewed with each participant (see Appendix D). A demographic data form was used to collect information for descriptive purposes and was completed after the informed consent was signed and prior to the start of the face-to-face interview. The demographic data form included information such as gender and age and marital status (see Appendix E).

In grounded theory data collection begins with the first interview in which simultaneous data collection and analysis are conducted to shape and inform subsequent data collection and analysis using the method of constant comparison (Charmaz, 2006). This constant comparative method provides the researcher with an established set of procedures for conducting the data analysis. The interviewer researcher used two broad opening questions at the start of the interview and subsequent questions were utilized to guide the interview process (Appendix F).

In keeping with IRB protocol each participant was informed that once the interview was concluded the voice recordings of the interview would be transcribed by this researcher. The tape recordings of the face-to face interviews would be assigned a number by this investigator. The transcribed copy of the recording will also have a number corresponding to the tape recording. A second meeting for member check was scheduled at the end of each face-to-face meeting to accommodate the convenience of the participants. Once the audio-taped information from the face-to-face interview was transcribed by this researcher, the participant was contacted by phone or email to confirm the second meeting (member check) in order to provide an opportunity to confirm, delete or change the information that was transcribed. The second meeting (member check) lasted approximately 30 minutes. After the first participant interview was transcribed and analyzed a second participant interview was conducted with another study participant.

All subsequent interviews were conducted in the same manner using the constant comparative method. This method assumes the processes of data collection, coding, analysis, and theorizing to be simultaneous, iterative and progressive (Creswell, 2007). For example, as the data are collected, they were coded into categories (as many as

possible) so that subsequent coding either will confirm these categories, refine, or extend and modify them to fit the new data. The data from each participant was compared with itself and with data from interviews with each new participant. During this initial coding, the researcher remained open to whatever emerged from the data in order to facilitate the process of further data collection.

**Memos**

Memos are used in grounded theory to write the ideas of the researcher as they pertain to the research process, data analysis, and the relationship between codes and the emergent data. Memos provide another lens through which to view the data and to draw cross linkages between the experiences of each of the participants. Memos were used to record any recognized personal bias encountered by the researcher during the study. Because one's perspective and belief system may influence how one views and works with data, reflexive journaling in the form of memos was used by this researcher to record methodological decisions. Additionally, memos recorded what is happening in terms this researcher's own values, interest, and experiences in the context of the study. The process of writing memos continued through all phases of data analysis until categories were completed and theoretical concepts developed.

**Interview Questions**

Qualitative research which involves collecting data about real world phenomena and interviewing participants is a useful method of obtaining information from the participants' perspective. In grounded theory the original research question determines the focus of the study (Speziale & Carpenter, 2007). Interviewing involves asking questions

and getting responses from the participants in the study. Gubrium & Holstein (2001) describes three general types of interviews: (a) structured interview, in which the interviewer uses the same set of questions for each participant without deviating. These questions are usually created prior to the interview and are standardized such as in self-administered questionnaires; (b) semi-structured interviews, in which the interviewer and the participants engage in a formal interview. The interviewer uses a set of questions to guide the interview process allowing for some deviation based on the response of the interviewee; and (c) unstructured interview, where there is no structured interview guide and where the interviewer has little control over the participants responses to questions asked. In this study a semi-structured protocol was be used, and two of several broad open-ended questions was asked by this researcher. Questions that were asked included the following: (1) Can you describe your current routine of managing and monitoring your blood pressure at home? (2) Can you tell me who or what influenced you to manage and self-monitor your blood pressure at home? The focus of the interview was guided by the participant responses as well as subsequent questions and interview guidelines (see Appendix F). These open-ended questions provided participants with the opportunity to fully express their personal experiences with the phenomenon. Subsequent interviews were conducted in the same manner as the initial interview. However, after the first interview, and each subsequent interview, the questions were refined based on the responses of the interviewee in an effort to capture meaning and the full participant experiences with the phenomenon.

## Demographic Data

An investigator-developed demographic survey instrument was used to obtain information from participants regarding age, gender, marital status, employment status, self-identified ethnicity, educational level, and diagnosis of hypertension. In addition, participants were asked to self-report how long they have been monitoring their blood pressure at home to establish a time line for home-monitoring. Participants were also asked to rate the ease or difficulty of self-monitoring on a scale of 1-10. This demographic data was collected after informed consent was signed and IRB documents completed (Appendix E).

## Data Analysis

The first interview was analyzed using open coding techniques after the interview data was transcribed and prior to proceeding with any further interviews. Findings from the first interview served as the basis for guiding subsequent interviews. This process which is known as the constant comparative method was repeated with subsequent participant interviews until the final interview was completed. Each interview was transcribed and analyzed prior to subsequent interviews and data from each participant was then compared with itself as well as with data from interviews of all other participants (Corbin & Strauss, 2008). The goal and focus of grounded theory analysis is the discovery of concepts and categories and the development of a substantive theory. During data analysis three coding techniques were used, open coding, axial coding and selective coding (Corbin & Strauss, 2008). The steps and phases of data analysis are outlined in Table 3.

## Open Coding

According to Strauss and Corbin (1998) open coding is a process where data are broken down into parts and then examined and labeled for similarities and differences. This involves reading and re-reading each sentence line by line while listening to the tape to determine the meaning and nuances of participant narratives. Throughout the use of this coding technique and data analysis, any theoretical considerations and ideas that emerge were recorded as memos (Corbin & Strauss, 2008; Glaser & Strauss, 1998). Line by line analysis of data was conducted to include words, phrases, sentences, themes and passages in order to find as many initial concepts as possible. These concepts are abstract representations of an object, event, action, or interaction deemed significant in the data and are tentative. In qualitative methods the 'number" is considered the unit of analysis, whereas in grounded theory the "concept" is the unit of analysis. Emerging concepts were identified and labeled according to their properties and dimensions corresponding to the transcribed data. The aim of this stage of analysis is to identify as many concepts as possible and to identify the properties (characteristics) and dimensions (variations) of codes and categories. Properties are defined as the characteristics of codes, and dimensions are the variation of a property along a range (Corbin & Strauss, 2008).

## Axial Coding

The initial coding generated a lot of data. This data was then put together and reorganized during this phase of analysis. Similar concepts were grouped together to form categories and sub-categories. All substantive codes were subsumed into emerging categories and subcategories and linked according to their shared properties. The

subcategories describe when, where, why, how, by whom, is the phenomenon likely to occur and what consequences are involved (Corbin & Strauss, 2008). These categories are the corner stone of theory development and the re-assembly of similar categories is referred to as axial coding. All categories and subcategories were further analyzed during this process, thereby relating categories and subcategories through the analysis of their properties and dimensions. When identifying and analyzing categories and sub categories, this researcher focused on understanding the context under which the phenomenon was occurring by asking questions of the data. For example, what are the conditions under which middle aged-Americans with high blood pressure function? What problems arise that lead to some form of action, interaction, or emotion, and what are the associated consequences?

Advanced memos both methodological and theoretical were utilized to reflect what the data is saying and what impressions and questions arose from examining the data. The use of the constant comparative method of relating data to ideas and ideas to other ideas, helped to refine and determine what questions needed to be asked based on data from prior interviews with the aim of identifying a core category.

As categories and subcategories were compared and contrasted with each other, the number of categories were reduced and collapsed into a larger category. The focus during axial coding is to form a more precise and complete description of phenomena. In axial coding the process of refining the theory begins to take shape. The goal in this phase of analysis is to generate and develop an internally integrated model of the phenomenon. Category and pattern development continued until a central core category was identified (Glaser & Strauss, 1967; Corbin & Strauss, 2008). As Glaser states, “The

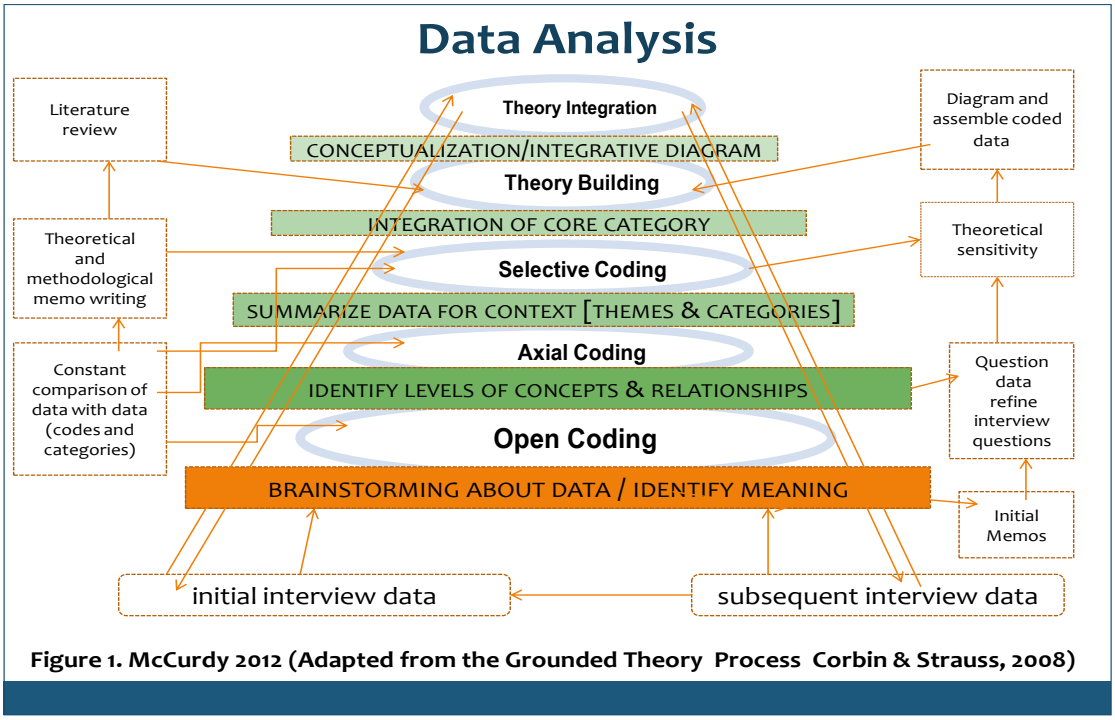
generation of theory occurs around a core category" (Glaser, 1978, p. 93). Furthermore according to Glazer the core category must be central and related to as many other categories and properties as possible. The central category represents the main theme of the research and unifies other categories thereby giving it explanatory power. Additionally, the central category explains data variation and is able to withstand contradictory or alternative cases (Strauss & Corbin, 1998). In this study no alternative or contradictory cases were discovered.

**Selective Coding**

The final step in coding is selective coding. In this phase the different categories selected are interrelated to create a perfect fit for the story line that will explain the phenomenon of interest. The techniques employed to integrate theory included sorting through memos to delineate a theoretical outline and reassembling the coded data conceptually and diagramming the entire process. Focus was on memos, related categories and properties centered on a core variable. The notion of theoretical sensitivity is particularly important at this stage. Theoretical sensitivity is the attribute of having insight, the ability to give meaning and the capacity to understand (Strauss & Corbin 1990, p. 42-43) and separate what is important in the data from what is not. Sensitivity is often achieved by a series of reflections on personal and professional experiences and extensive literature search. At this time this researcher may step back and reflect on the data and her own experiences with the data. Data analysis continued until theoretical completeness and saturation occurred. This is evidenced when the problem can be explained with the fewest concepts, with the greatest scope, and as much variation of the behavior under study. The goal of this study is to generate a theory of the critical

influences on middle-aged Americans related to the n management and self-monitoring of their blood pressure, and this goal was achieved. Data collection and analysis continued simultaneously until saturation was achieved in all categories. Saturation occurred when: (a) continued interviews do not yield any new or relevant data regarding a category, (b) the categories are fully developed in terms of their properties and dimensions demonstrating variation and (c) the relationship among categories are well established and validated (Strauss & Corbin, 1998, p. 212). Data was collected until saturation and adequate variability was reached in all emergent categories (Glaser, 1998).

Figure 1. Data Analysis Process




## Research Rigor

Grounded theory tradition is a qualitative method that is appropriate for developing a theory about nursing practice (Creswell, 1998; Strauss & Corbin 1998).

However, one must understand the variations and the subjectivity that is used in this tradition to formulate a theory. Therefore, to determine if data collected are grounded in the theory, the criteria used to create the concepts, categories, and the propositions regarding the phenomenon under study must be examined for rigor and trustworthiness. Guba and Lincoln (1981) and Lincoln and Guba (1985) described the four criteria for trustworthiness and rigor as credibility, transferability, dependability, and confirmability.

**Credibility**

In qualitative inquiry, credibility refers to findings which are truthful and consistent with the perspective of the participant (Guba & Lincoln, 1981). Findings need to make sense and be credible to the reader and the participants. The desired outcome is that the participants' perceptions and experiences match the researcher's portrayal of them. There are many methods of establishing credibility in qualitative research, some controversial and some well-established. Prolonged engagement in the field, persistent observation, triangulation, peer debriefing, negative case analysis, referential adequacy and member checking are some of the most common and well established methods used to assess truthfulness (Lincoln & Guba, 1985). In order to add credibility to this study, theoretical sampling was utilized to confirm categories formulated from the data based on the interviews conducted by this researcher. According to Strauss and Corbin (2008), theoretical sampling is a process that occurs simultaneously as data are being collected and coded. Theoretical sampling forms the basis of theory formation, which is the ultimate intent of grounded theory. In addition, member checking was utilized to confirm categories and transcripts were reviewed with participants for their validation. This process confirmed the correctness of the transcription of the face-to-face interview and

clarified participants' accounts and descriptions. Participants were allowed to expand upon the descriptions of their perceptions and confirm that the transcriptions are correct. Finally, at the end of data collection and analysis three participants were randomly selected to review the findings of the study in order to confirm the categories and lend credibility to the findings.

A major strength of grounded theory is that credibility is established when data emerges from the narrative of participants who are experiencing the phenomena under study. This data then reflects their point of view (Glaser & Strauss, 1967). Meeting face to face with each participant during the interview process laid the foundation for establishing credibility in this study. Furthermore, rich descriptions of participants' experiences were obtained and included verbatim in the study. Memos were also used to reflect on the data collected by this researcher adding to greater credibility.

**Transferability**

Transferability refers to the extent to which the research findings and conclusions can be applied to other settings and populations (Guba & Lincoln, 1981). In this study the sequence of data collection was described in a step by step which left a clear audit trail. Furthermore, the researcher consulted with the dissertation chair and committee members regarding the integrity of the research process. The rationale for selection of the method, the sample selection, including inclusion and exclusion criteria, participant demographics, site selection, and data collection process have been previously addressed and may be used to improve the possibility of transferability. The questions to be used in the face-to-face interview and the data collection and analysis could set the stage for the

replication of this study in a different area. Describing the phenomena in sufficient detail supports the conclusions drawn, and determines the extent to which they are transferable to other times, settings, situations and people.

**Dependability**

Dependability refers to the method by which the researcher describes the changing contexts and circumstances that are fundamental to qualitative research (Guba & Lincoln, 1981). This criterion is consistent with reliability in quantitative research, which means that the goal of consistency was supported, and the findings are stable based on the context and circumstances of the research being the same. In this proposed study, using theoretical sample consisting of hypertensive middle-aged Americans who manage and self-monitor their blood pressure at home to discuss their influences and processes of management and self-monitoring provided a thorough and valid discussion of the concepts relating to the phenomena under study. Lincoln & Guba (1985) suggests that having a researcher who is not involved in the research process examine both the process and the product of the research study will enhance dependability by ensuring that the findings of the study are accurate and supported by the data. This technique is controversial and not endorsed by the founders of grounded theory since it relies on the assumption that there is a fixed reality to be accounted for by the researcher and confirmed by an outside auditor who cannot know the data as well as the researcher who is immersed in the study. Therefore, in this study an audit trail was established from the start of the research process to the development and reporting of the findings. This includes raw data, field notes, memos, and theoretical notes in order to provide an opportunity for an outsider to challenge the process and findings of the study.

## Confirmability

Confirmability is defined by Guba and Lincoln (1981) as the extent to which findings can be confirmed or corroborated by others. It also refers to the degree of neutrality or the extent to which findings of the study are shaped by the respondents and not by researcher bias, motivation or interest. In this study the concepts that were formulated and used for theory development were confirmed by theoretical sampling. Strategies that enhanced confirmability included direct quotes of participants, and substantiated findings from the participants. Researcher bias has been previously addressed as well as reflexive journaling in the form of memos, all of which substantiate confirmability. Furthermore, confirmability was supported by the dissertation chair and committee members who will examine both the process and product of this research study and evaluate the accuracy of the findings, interpretations and conclusions and provide feedback for additional data gathering and the development of stronger and well-articulated findings supported by the data.

## Chapter Summary

This chapter described the purpose of this qualitative, grounded theory tradition and how this method assisted in the exploration of the topic under study. The chapter discussed the description of the sampling criteria, the data collection and analysis guidelines, and the procedures involved. The methods used to establish trustworthiness and rigor were also presented. Finally, an overview of the ethical guidelines that will be adhered to throughout this study was presented. The methods presented substantiated the findings and theory development based on credibility, dependability, transferability and

confirmability of this study that will allow for future replication of the study. Middle-age Americans were chosen because the middle years represent the active working years for individuals where life stressors are paramount and the challenges of managing health and other responsibilities are amplified. Furthermore, those individuals in the middle years account for the highest percentage of individuals with high blood pressure affecting both men and women equally (CDC, 2010).

# Chapter Four

## Findings of the Inquiry

### Introduction

The purpose of this qualitative study was to explore the critical influences on the management and home self-monitoring of blood pressure among middle-aged hypertensive Americans using the grounded theory approach. This chapter presents the findings from 13 participants who were interviewed face-to-face. These participants shared their day-to-day experiences, and feelings regarding their management and self-monitoring practices. The three overarching research questions that guided this study were:

1. What are the current methods and practices utilized by middle-aged hypertensive Americans who manage and self-monitor their blood pressure at home?
2. What are the critical influences that guide the decision making process?
3. Are there differences and similarities in themes related to the management and self-monitoring practices among middle-aged hypertensive Americans?

In order to elicit answers to these questions 14 interview questions were initially formulated to obtain information regarding this study (Appendix F). The interview data were analyzed according to the Corbin and Strauss's (2008) grounded theory design until a core category emerged.

### Overview of Participants' Characteristics

All participants resided in the metropolitan South Florida tri-county area of

Miami-Dade, Broward and Palm Beach Counties. The identity and confidentiality of the participants were protected as each participant self-selected a pseudonym which was used throughout the study. The following section describes the demographic characteristics of the study participants.

**Demographic Characteristics of Participants**

After a detailed explanation of the study by the researcher, participants voluntarily consented to participate in the study. Participants included eight men (61.5%) and five women (38.5%). The average age for males were slightly lower 56.8 than their female counterparts whose average age were 58.2 with an overall average age of 57.3 years (range 51-65 years of age). Participants self-identified their ethnicity as follows: Afro-Caribbean 61.5%, Black/African American 7.7%, East Indian 7.7%, Hispanic 7.7% and White 15.4%. Most of the participants were well educated with 38.5% having attained a bachelor's degree and 15.4% a post graduate degree. Three individuals representing 23% had an associate degree, 15.4 % had vocational training and only one individual (7.7%) had a high school diploma as the highest level of education achieved.

The majority of the participants were either married (38.5%) or divorced (38.5%). Two participants reported being single (15.4%) and one individual (7.7%) reported being separated. A larger percentage (69.2%) was employed full time, while 23% were retired and 7.7% were unemployed. In response to complications related to high blood pressure, 38.5% reported having personally experienced complications or witnessing a family member experience complications to high blood pressure. In contrast 61.7% responded that they never had any complications or known anyone personally who experienced

complications related to high blood pressure. Most participants (46.2%) found it easy to self-monitor their blood pressure at home whereas 30.7% found it moderately difficult and 23.1 % rated home self-monitoring as a difficult task. The participants self-reported the duration of their diagnosis and the duration of home blood pressure self-monitoring and management which are displayed in Table 4. Several participants also provided copies of their blood pressure logs for review by this researcher.

Table 4

Participants Self-Reported Duration of Diagnosis and Home Self-Monitoring

| Duration of Diagnosis | | | Duration of Self-Monitoring | |
|---|---|---|---|---|
| Years | n | % | n | % |
| 1-3 | 2 | 15.4 | 5 | 38.5 |
| 4-6 | 4 | 30.7 | 4 | 30.7 |
| 7-9 | 2 | 15.4 | 2 | 15.4 |
| 10 or more | 5 | 38.5 | 2 | 15.4 |

n= number of participants.

**Description of Study Participants**

*Tony*

Tony is a retired male age 65, married father and grandfather who was diagnosed nine years ago with high blood pressure by his cardiologist and has monitored his blood pressure intermittently over the past eight years. He reports history of triple bypass surgery, and smoking four packs of cigarettes a day. He has since quit smoking and within the past year he began monitoring weekly. Tony stated, "I want to live a full life and be around for my grandchildren. I would love to see them grow up." Tony denied having a family history of high blood pressure, however, both his older brother and father died at age 50 from a heart attack.

*Sam*

Sam is a 54 year old married female, mother and grandmother who was diagnosed with high blood pressure at age 49 during a routine medical visit and has been self-monitoring at home for the past five years on a daily basis. She reports a positive family history of high blood pressure and heart disease and she suffered two mini-strokes within the past year. She has been hospitalized three times in the past year for complications relating to high blood pressure with readings as high as 220/110. She reports a personal history if type 2 diabetes, and obesity. She hopes to have gastric bypass surgery but does not have health insurance. Sam reports the following regarding her experience with high blood pressure.

> Having high blood pressure is scary because you really don't have any indication when it's gonna go up. The only way to stop it is to know it's going up, the only way to know is to check it and the only way to deal with it is to take something to bring it down."

*Dan*

Dan is a 51 year old divorced self-employed male who believes he had high blood pressure in his late thirties but was first diagnosed 10 years ago when he went to the doctor for a checkup. He reports a positive family history with his father and grandfather both having high blood pressure and his grandfather suffering a stroke. He reports blood pressure readings in the past as high as 212/120 and self-monitors at least once a week. He states that he has had difficulty getting health insurance since getting the diagnosis and is concerned about being around for his son. Dan states, "When I found out I was

going to have a son I started monitoring it diligently, I don't want to leave my son fatherless."

*Jax*

Jax is a 52 year old divorced self-employed male who was diagnosed two years ago and has been self-monitoring for one year on a daily basis. He has a positive family history of high blood pressure. His older brother and both parents are currently on medication for high blood pressure. However, he describes himself has being anti-medication, and during the first year he did not take his medication as prescribed. He is now on three different medications to control his blood pressure. He describes the following encounter with a stroke patient.

> One day I went to the VA Hospital and I saw this man in a wheel chair. He was paralyzed on one side of his body and he said he had high blood pressure and wasn't taking his medication as prescribed and he had a stroke. Seeing that was very scary to me, knowing it's a silent killer. Having high blood pressure is almost like being hit by a car; it's something you don't expect and one day BOOM! It hits you head on.

*Rasta*

Rasta is a 60 year old retired single male who was diagnosed three years ago with high blood pressure and has been self-monitoring three to four times a week for the past two years. He reports stable readings in the 140's/ 90 or lower most of the time. He takes two medications daily to control his blood pressure and denies a family history of high blood pressure or heart disease. He states:

> It's a serous thing, and you have to get serious about it and monitor and take your medication because it's a silent killer. As a man I sometimes feel I am all right (laugh) no symptoms, but when I check, sometimes it's high so I keep one or two tablets in my pocket in case I forget.

*Carlos*

Carlos is a 55 year old married male and recently retired high school teacher with no children. He was diagnosed with high blood pressure five years ago and has been self-monitoring and managing his blood pressure with nutrition, exercise and relaxation techniques only. He is adamant about not using prescription medicines to control his blood pressure. He states:

> I developed an attitude that I did not want to have a stroke so I am going to manage my stress. My family lives at stroke city. My mother suffered from hypertension, my father had a stroke; my cousin had a stroke, several people in my family have had strokes because of hypertension gone untreated, so that is how come I started to monitor. I am not surrendering to the hereditary theory yet.

*Boton*

Boton is a 57 year old male who is married, works full time and has a daughter and grand-daughter who both reside outside of the United States. He reports having no family history of high blood pressure or heart disease. He was diagnosed with high blood pressure shortly after his mother's death eight years ago while being treated for depression and has been self-monitoring since. He was recently diagnosed with type 2

diabetes after being treated with cortisone for a cervical fracture and checks his blood sugar daily. He admits to smoking about four cigarettes a day down from a pack a day, and is trying to quit. He states:

> I am meticulous about my diet and I stay active. For 17 years I have pushed myself to compete in sports, tennis, horseback riding, car racing and soccer. Now I am more into swimming and weight lifting and taking it easier. My blood pressure is under control. I have been on the same medication for years. I went from weighing 217 to 175 and since then my blood pressure always stays within the normal range 120's/80's I still take the medicine although I lost the weight."

*Grace*

Grace is a recently divorced mother and grandmother who have had high blood pressure for 12 years. She reports a positive family history. She states that her mother who is 82 years old and both her younger sisters have high blood pressure. Her father, who is deceased, also had high blood pressure. She self-monitors weekly and is currently on three different medications, with the third medication having been added a month ago when she discovered her blood pressure was trending high and reported it to her physician. She states:

> It's been up to 170 and I can't pass a physical for my job if my blood pressure is high. I have white coat syndrome so I self-monitor at home, I have had my job for 22 years and I am required to have a physical every

> year instead of every two years because I have high blood pressure. If I don't have it under control I will lose my job.

*Jeanne*

Jeanne is a 61 year old mother of three adult children who is recently separated from her spouse. She was diagnosed 10 years ago, self-monitored for a while and then stopped. Both her mother and father suffered strokes over the years and her mother died two years ago as result of complications resulting from a second stroke. In addition her younger brother recently suffered a stroke and has since fully recovered. These experiences have motivated her to resume self-monitoring more frequently than weekly, so she sometimes monitors three times a week when she is under stress. She has been self-monitoring consistently for six years and reports that her blood pressure has been in the 120/80 range except for periods of illness and stress where it would become elevated to 150/90's. She states:

> I feel self-monitoring is the right thing to do. I try to watch my diet and maintain a healthy lifestyle. Having seen what's happened to my family it causes a little fear in me and makes me realize I need to keep on top of it because I also have type 2 diabetes.

*Mackie*

Mackie is a 60 year old married male with two adult children who was diagnosed just over four years ago and has been self-monitoring weekly for the past two and a half years. His father died of complications related to poorly managed high blood pressure, heart disease and stroke. He also has three younger brothers who are hypertensive and

who are controlled with medication. His mother who is living also has high blood pressure controlled by medication. He reports that his blood pressure is currently under control on two medications. He states:

> I never really wanted to get on medication anyhow, and I was trying my best not to take medication by exercising, eating healthy and controlling stress but it wasn't working. You know one of the things that's circulating among men is that when you are treated for high blood pressure it can be a factor in erectile dysfunction. I discussed it with my physician, but of course this was not my highest priority, the highest priority is to stay alive.

### *Faith*

Faith is a 56 year old divorced mother of two adult children who is currently un-employed and reports no family history of high blood pressure or heart disease. She monitors her blood pressure daily on the advice of her medical doctor. She reports feeling depressed since her diagnosis. She also reports only taking her blood pressure medication when her blood pressure is elevated. Her blood pressure is currently not under control. She also admits to having poorly controlled type 2 diabetes as well as sleep apnea.

> It's been very frightening for me having high blood pressure, because I have known folks who neglected managing their blood pressure to their detriment. Now that I have to monitor my blood pressure every single day I find it very restricting. Besides that, I have to remember to take my medication. I have been hospitalized three times in the past year because

> of out of control blood pressure. Over the past six years my blood pressure has been up and down, very unstable and still is.

### *Lady*

Lady is a 60 year old divorced mother and grandmother who was diagnosed with high blood pressure 10 years ago and reports a positive family history, with both mother and father having high blood pressure. Initially she tried to maintain blood pressure control with diet, exercise and alternative medicines, but she eventually had to go on medication. She has been self-monitoring for the past eight years and is under good control on one medication. She states:

> I wish I could control my blood pressure without medication, but it's not realistic. I would exercise three times a week and take my blood pressure before and after and could definitely see that my blood pressure was controlled with the exercise. If I don't exercise my blood pressure goes up. But I won't take a chance with my life and health so I still take my medication.

### *Patty Man*

Patty Man is a 55 year old self-employed single male who has had high blood pressure for 25 years. He reports a significant family history with mother, father, and sister all developing high blood pressure in their 30's and all have managed and self-monitored over the years with no negative outcomes. He also reports a personal history of hypothyroidism. He states:

> I was brought up by my parents to always check my blood pressure because of our family history. Everyone in my family monitors their blood pressure regularly. My blood pressure remains in control on one medication and only goes up if I get sick.

In summary, these participants described the motivation for self-monitoring that varied from observing the negative effects of poorly managed high blood pressure in others to, their own personal experience or health crisis and or the desire to have a life free of disability. The label of high blood pressure as "a silent killer" instilled fear as a motivating factor in some participants. For one participant, having a normal blood pressure reading was a requirement for continued employment and a powerful motivator for self-monitoring on a regular basis. Likewise the desire to see the next generation reach adulthood was also a powerful motivator for most participants.

## Self-Monitoring and Management Practices

Besides blood pressure self-monitoring at home, participants reported making lifestyle adjustments such as following low salt diet, smoking cessation, exercising regularly, lowering cholesterol and reducing body fat as complementary to maintaining blood pressure control. However, overwhelmingly, all the participants reported medication management, (pill taking) and home self-monitoring as the most critical management strategy to being under control. They described their self-monitoring routines, and provided blood pressure logs to be reviewed by this researcher. They described a self-monitoring practice which involved checking and re-checking blood

pressure for accuracy, responding to the readings by taking needed action when indicated. In addition, participants recognized and acknowledged a pattern to their blood pressure readings that helped them to decide when to adjust their monitoring schedule. In the absence of bodily cues indicative of high blood pressure, self-monitoring was the only conclusive way of determining their blood pressure statuses. Mackie states, "I have no cues, no markers and no bodily sensations. I am in good control now so I only check once a week. The only way to know if it's high is to check it."

All participants reported a response or reaction to the readings they obtained from self-monitoring, whether the readings were favorable or not. Their responses were either to take action or not to take action based on the reading obtained. Some actions included taking additional medication, implementing their emergency plan, calling their physician, re-checking their blood pressure, and evaluating their stress level, as well as making lifestyle changes. Participants admitted that they experienced distressing emotions when getting higher than normal readings. These emotions included (a) frustration (b) fear (c) anger and (d) disappointment. When normal readings were obtained, participants reported feeling happiness, relief, and a sense of accomplishment.

Grace states,

> I never know my blood pressure is high unless I check it. I am under a lot of stress and have tension and headaches on a regular basis; I can't go by how I am feeling. I am high strung. I am not overweight but I have a stressful job. I am happy when I get a reading of 140/80 or lower.

Self-monitoring involved checking one's blood pressure on a regular basis in order to determine the effectiveness of medication, how one was handling stress, and the general state of one's health. It was also a means of tracking changes and trends in blood pressure and averting a crisis. Sam describes the following experience with taking action after a high reading on awakening.

> I wake up at 4 AM in the morning. I take my blood pressure. My blood pressure is 174/110. I pop a clonidine and go back to bed. I lie down; make my peace with God just in case I don't make it through the night (laughing). What else can I do?

All participants reported varying levels of understanding and ease regarding blood pressure self-monitoring and management. Their perceptions of self-monitoring changed over time as evidenced by such nuanced statements as, "when I first started" followed by statements reflecting their present perceptions such as, "finally now after all these years" or 'it's second nature." One participant stated, "Taking my blood pressure has become so elementary to me now." All participants reported adhering to a routine or blood pressure monitoring schedule either on the advice of their healthcare practitioner or on their own volition. Nine participants representing 69.2% of the total participants reported that they monitored their blood pressure at least once weekly. Three participants 23.1% monitored at least once daily and 7.7% representing one individual, who monitored at least once a month.

Participants also reported that during times of crisis, such as illness or undue stress, they would monitor more frequently. Not all participants shared their self-

monitoring results with their physician or health care practitioner on a routine basis. However, if their blood pressure was outside the normal range (high) they would then notify their medical practitioner, implement emergency measures such as take an additional blood pressure medication or call 911 immediately. Most participants reported having an emergency plan in place for abnormally high blood pressure readings.

In recognizing the patterns that developed from their self-monitoring practices, participants described modifying their monitoring schedules accordingly, (how often they were going to monitor) based on the patterns which emerged. When they first received their diagnoses they tended to monitor more frequently. If they were ill they monitored more frequently. If their blood pressures were unstable they monitored more frequently. Participants who described their blood pressures as being "stable" monitored less frequently. Stability meant that participants had reached a point where they felt "okay" about their numbers and there was little or no variation or fluctuation in their blood pressure readings.

All participants decided on their own to change their monitoring frequency based on consistent, stable and normal readings. Although some participants discussed their plans with their physicians they conveyed that they determined how often and when they would self-monitor. This finding supports the notion that healthcare providers can influence interpretations and approaches to managing healthcare experiences but the individual's own conclusions and decisions will ultimately guide their behavior (Johnson, 1999).

## Emerging Categories and Sub-Categories

The participants described their thoughts, feelings and experiences with high blood pressure from diagnosis to their current state of management, revealing a distinct and clear process that emerged over time. The data from these participants interviews were transcribed and analyzed according to the grounded theory process (Corbin & Strauss, 2008) discussed in chapter three (see Figure 1). Using open, axial and selective coding processes, the following dominant sub-categories emerged from the data leading to the category of accepting the diagnosis.

## Sub-Categories

The three subcategories, (getting the diagnosis, exploring causation and denial vs. acceptance) are explored below, and are later submerged to form the category "accepting the diagnosis" when it became evident that accepting the diagnosis was critical to overall success in blood pressure management and self-monitoring for these participants.

### Getting the Diagnosis

All participants located themselves at the time of diagnosis by describing the circumstances surrounding their diagnosis. Sixty one and a half percent (61.5%) representing (8) individuals were diagnosed during a routine physical examination and 38.5% (5) were diagnosed as a result of seeking medical care for a seemingly unrelated illness. Faith describes the circumstances surrounding her initial diagnosis:

> I was diagnosed about six years ago. I didn't understand what was happening. My vision was blurred and I was getting these debilitating

> headaches. In talking to my daughter she suggested I go to the doctor. I thought I am getting older and my eyes were getting bad and that's causing the headaches. I went to the ophthalmologist who examined me and sent me immediately to my primary care physician. It was my primary care physician who told me that I not only have high blood pressure but also high blood sugar. That was a little scary!

Boton describes the circumstances surrounding his diagnosis following the death of his mother.

> I had just lost my mother and I wasn't feeling well. I went to see a psychiatrist to see if he could help me get over the situation of the loss and all that. He then gave me some pills to try to control my emotions but the thing is it got to the point where I couldn't talk. I was feeling so bad. I had an internal break. So I decided to stop the pills and go to my medical doctor and he told me I had high blood pressure.

Jax explained how he felt about hearing the diagnosis.

> There was a level of disappointment, even though my sister tried to prepare me and told me I was predisposed based on our family history. I was disappointed to hear the diagnosis. Although I was predisposed, I believed there was a strong possibility it wouldn't happen to me.

Once the diagnosis was medically confirmed participants questioned themselves regarding how and if this disease could have been prevented.

**Exploring Causation**

Individuals participants with a family history of high blood pressure recognized the diagnosis as an outcome of hereditary tendencies that they had hoped to keep in abeyance. However, once the onset and diagnosis of high blood pressure was determined, some participants questioned the cause of this malady even if they were not surprised by the diagnosis. Rasta stated, "When I first found out I had high blood pressure I start thinking, what would cause it?" Most participants attributed the cause to heredity or familial predisposition. These individuals felt that getting the disease was an inevitable outcome of their family history, which left them no choice but to accept the diagnosis. Others attributed the cause to a stressful lifestyle. Carlos says, "I think what caused my blood pressure to go up is because I was basically under stress, re-adjusting to life in an environment that I considered hostile." Patty Man conferred that while heredity may be the cause of his disease, "stress keeps it going." In the absence of a family history of high blood pressure, some received the diagnosis with surprise and mistrust. Tony who denied having a family history reflected on what may have caused his blood pressure to increase.

> It was surprising to me. Well I was kind of doubtful because my blood pressure tended to be on the low side and I didn't have a family history. My job being what they call a high risk job, I had to do medicals every two years and everything used to be normal. In those days of course I smoked cigarettes, and I had been smoking for many years. I was also tending to put on weight so this may have caused it.

After exploring what may have precipitated this disease participants were faced with a decisional conflict. Among the decisions they had to make were: should they take medications or seek alternative therapies, or should they make lifestyle modifications? Many participants tried alternative medicine, and lifestyle modifications but eventually most decided to take prescription medication in addition to making lifestyle changes.

**Denial vs. Acceptance**

Facing the diagnosis of high blood pressure posed tremendous emotional challenges for some participants. Grace explained, "I wasn't surprised however, I just never thought I would get it." Mackie says, "I accepted the diagnosis, I was never in denial although I was trying my best not to have to take medication." Jax explained, "I felt it was inevitable because I have family trait of it, yet I was somewhat disappointed by the diagnosis. I work out 4-5 days a week in the gym, ran marathons and considered myself a healthy eater." Patty Man stated, "This was no surprise because my mother and father both had high blood pressure and my sister has it too. I was expecting it!"

Dan stated:

> Having high blood pressure is not a big deal! My father and my grandfather had it. I am in construction, so I mean I am carrying, lifting, going up ladders. I was a scuba diver. I felt like I was active enough, I am not overweight so I should be okay.

Faith on the other hand had difficulty accepting the diagnosis, she states. "I didn't believe it because I was too young to have these problems. That's probably why I stopped taking

the medication for a while. I feel like this is a curse, I am embarrassed about having high blood pressure." Tony explained his struggle with accepting the diagnosis.

> I was not convinced, but I took the medication the doctor prescribed and it made me a zombie. I stopped the medication and told him that I most certainly would have been six foot under if I kept taking the medication. So he changed the medication and he gave me a lighter dose which I take to this day.

Participants who did not accept the diagnosis described difficulties with blood pressure control, medication compliance, and lifestyle management. Faith states: "I feel that if I walk I don't have to take my medication and my blood pressure will be under control. If I get depressed I don't walk and my blood pressure goes up. I do need to be consistent in taking my blood pressure medicine. Over the past six years by blood pressure has been up and down, very unstable."

Lady reported,

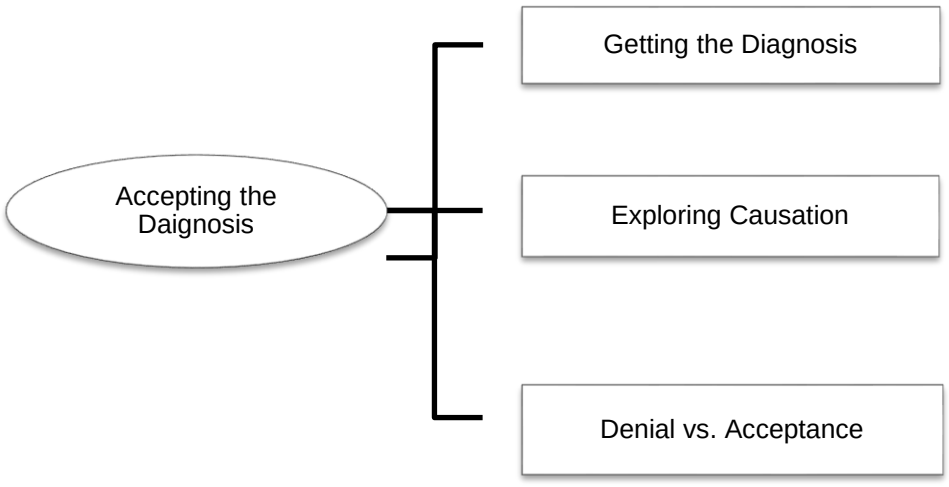
> The emergency room doctor said I had high blood pressure and I thought this can't be! It's only because of the caffeine, my lack of sleep and working nights. If I could change my shift my blood pressure would be normal.

While some participants struggled initially with accepting the diagnosis of high blood pressure and expressed emotions that included surprise, disbelief, and fear. Others accepted it and were actually expecting the diagnosis and were prepared because of their family history. Yet there were others with positive family

histories who were engaged in lifestyle practices with the hope of delaying the diagnosis or preventing it all together. These individuals expressed disappointment upon receiving the diagnosis.

Denying the diagnosis led to management difficulties, poor blood pressure control and feeling of additional stress and pressure associated with managing the condition. The following diagram demonstrates the relationship between the following category, "accepting the diagnosis" and the sub-categories developed during the axial and selective coding process. The sub-categories getting the diagnosis, exploring causation and denial vs. acceptance were submerged to form the category *accepting the diagnosis* leading to the construction of the core category.

Figure 2. Sub-categories (Axial and Selective Coding Process)



## Categories

The following categories were constructed from analysis of the data derived from all the interviewees. They also emerged as a result of deleting unverified and underdeveloped concepts and themes, from examining methodological and theoretical memos, and attention to suspending researcher bias by reviewing memos regarding this researcher's attitude and beliefs that surfaced during the analysis.

## Under Pressure

This category represents a predominant theme in the participants' narratives. Participants expressed feelings of extreme and prolonged stress throughout their daily lives. They described external stressors such as job stress, economic difficulties, as well as internal stress manifesting in the form of constant worry. Dan explains his experience of stress as it relates to his blood pressure:

> I am under extreme, extreme stress. I pray (pause) but it's very difficult because I am not good at managing my stress. I am not, that scares me, and maybe that scares me because I think it will affect my blood pressure. It's like a double headed sword. I may say, oh well, it doesn't bother me, the stress bothers me. My blood pressure goes up and it goes up because I am stressed.

Jax describes his experience with stress and being under pressure at work in the following statement:

> Stress plays a major role in my blood pressure. I have always worked in a high stress environment managing major weapon systems with a lot of accountability. Being a minority I felt I had to be twice as good at what I do to be considered as good.

Rasta describes feeling under pressure to be a good provider and describes his stress as an internal pressure to progress economically:

> Making some kind of money that is my greatest stress. Not making money fast enough, you have your kids and your wife or girlfriend or whatever, and you think about it, provide something for them. Or you can't do what you would like to. You may think you are not worrying but it is there underneath. Sometimes I am thinking and worrying, but it doesn't show but in myself I know. Sometimes you think you are not progressing you should be doing better and you see yourself struggling to reach there but at the same time you are doing fine, but there is always more.

Jeannie explained the relationship between stress and her blood pressure: "Stress plays a significant part… I was sick for a whole year, and I find that I worry a lot and my blood pressure responds to that. I think that is my biggest struggle." Grace describes being under pressure at work, she says, "I have a very stressful job. I have had this job for 22 years and it's more stressful than ever." Carlos states, "I knew I was under pressure, I would sort of hear the bu dum! bu dum! …my heart racing. You could hear the racing."

Boton says:

> Everything is stress! Even though you are well off you are really worried, just maintaining what we have and trying to survive. The pressure I put on myself is enormous. I send a lot of money to my family, my father, my daughter. They are back there. I don't have any family here. The only family I have here is my wife and she has her family, but it's not the same when I am by myself, I am really by myself. There is always stress, stress of getting it, stress of not getting it, stress of everything.

Lady reported job stress relating to shift work as responsible for her developing high blood pressure:

> It was extremely difficult and stressful for me working the night shift. I had difficulty sleeping during the day and drank coffee all night to stay awake, eventually I became seriously ill one night and was sent to the emergency room where they found my heart rate extremely high and my blood pressure 220/110. That's how I was first diagnosed with high blood pressure. The pressure to function under those conditions just got to me.

Faith describes her daily experience with personal and economic stressors:

> My stress level is a 10 every day. I am very stressed! I worry about personal issues every day. First of all I haven't had a real job for the past ten years. I can't live on the salary I have been making. I have depleted all my savings. I don't wanna loose the house. I feel a lot of pressure because of the relationship between my daughter and I, and I am depressed about it every day. It affects my mood and how I treat myself.

Alternatively, Mackie described stress as having no effect on his blood pressure. He states,

> Stress doesn't affect my blood pressure; maybe my medication is keeping it under control. I had a break out of shingles; I thought I was having a heart attack. My physician mentioned it was stress induced and during all this my blood pressure was normal…We all need some stress in our life to produce, but it can't get excessive and out of hand.

Sam also describes the following relationship between stress and her blood pressure. She states, "My blood pressure goes up and down all on its own with absolutely no provocation whether I am stressed or not." Despite feeling under pressure prior to their diagnoses participants also stated that they felt under pressure to manage their blood pressures post diagnosis in order to avoid negative outcomes from uncontrolled blood pressure. Participants validated that the term *"under pressure"* was an appropriate description of their experiences with extreme life stress both prior to and post diagnosis with high blood pressure. They also reported that accepting the diagnosis was pivotal in moving forward with health preserving measures.

**Accepting the Diagnosis**

Accepting the diagnosis was introduced and explored under the sub-category of acceptance vs. denial and this represents a summary of those findings. Those participants who accepted his or her diagnosis were empowered to face the task of management and self-monitoring. They were able and mobilize the

support they needed to restore and normalize their blood pressure. Accepting the diagnosis meant that the questions of why or how did this happen were resolved and participants were ready to face the future? The prior sub-categories of getting the diagnosis, exploring causation and denial vs. acceptance represented the decisional conflicts participants faced and resolved prior to accepting their diagnoses. Once participants accepted the diagnosis they were empowered to establish support systems that included significant others as well as health care providers and other information resources.

**Establishing a Support System**

Having a support system developed from the data as significant to managing lifestyle changes, maintaining blood pressure stability, and self-education in order to avoid negative outcomes associated with this disease. Participants' support systems included family and friends, healthcare professionals, health insurance, and having a life coach. Many of the participants reported that they relied on the healthcare profession as a major support system in managing and educating them about medications and their side effects. However, some felt that their healthcare providers were unresponsive to their needs. Dan reported:

> My prescription had run out and I needed a new one so I called the doctor's office and the receptionist kept telling me it was on his desk. All he had to do was call it in to the pharmacy. I eventually had to go to the office and make a scene before they would call it in. I didn't have the

> medicine because I didn't have insurance and my blood pressure was 212/118.

Faith describes her experience of frustration with her care providers and the lack of support she feels she receives from them in clarifying prescription changes. Faith states:

> Sometimes the name changes on the medication and my doctor doesn't alert me to the changes and I can't figure out which is which. I get confused and it's frustrating. Sometimes I don't think my doctor listens to me. I have been doing better recently now that I have a life coach.

In describing his support system Rasta stated, "I am glad when I am around my sisters, because I tend to not even remember and they will say to me, did you take your tablets?" Participants reported having health insurance was beneficial in providing financial support with purchasing of medication and blood pressure monitors. Those who were retired also benefited from pre-paid gym memberships covered under their insurance plans. Tony described his wife who is a nurse as his chief support system. Participants also described exploring alternative medicine and using the internet as a support for getting information about nutritional supplements as an adjunct or alternative to prescription medications, as well learning about medication side effects. Carlos stated, "I must thank my wife she has always been health conscious and that's been a good influence on me. I read I try to see if I can find answers that are not out of a pill." In summary having a support system lessened the stress associated with managing high blood pressure for these participants and empowered them to tend to their health with the assistance of others.

**Tending to Health**

In addition to having a support system this category marked the beginning of the participants' experiences with management and self-monitoring. Tending to health for this population included (a) self-monitoring, (b) taking medication, (c) managing lifestyle (diet, exercise and stress reduction, and smoking cessation), (d) having an emergency plan (e) identifying and listening to body cues when present, as well as (f) exploring alternative medicine, and (g) self-education. Tending to health was a natural progression that represented coming to terms with the diagnosis and committing to a self-management plan and routine. The process of tending to one's health inferred an ongoing process of management and self-monitoring where one is never entirely in control but hopes to achieve blood pressure stability and a sense of normality based on pre-established blood pressure goals. Jax puts it succinctly, "Having a high blood pressure means you are not in control."

Blood pressure is considered a variable phenomenon, subject to internal and external conditions, having a stable blood pressure reading within the established parameters became a key goal for these participants (Appendix G). In the beginning, participants had to decide to obtain blood pressure monitoring equipment and learn how to use the equipment. They learned to use blood pressure monitors by independently reading the instruction manual that accompanied the equipment. They also had to learn the meaning of the readings they obtained. This required activation of their support networks. This support network included information obtained from the internet, their primary care practitioners, family and friends. Tony stated, "My wife is a nurse and she would let me know what the readings mean."

Participants expressed being positively motivated to be healthy and free of disability as an important part of tending to health. This empowered them to take control by self-monitoring and managing their lifestyles. Some expressed negative motivational factors such as fear of disability or sudden death as symbolized by the term "silent killer." There was also a willingness to learn from their own experiences and the experiences of others who had suffered negative outcomes from having high blood pressure. Sam states, "Having had two small strokes, that was it! Monitor! Monitor! Monitor and medicate. Three times I had to go call 911. You don't feel it. The silent killer is true." Faith responded to being negatively motivated in the flowing manner and states, "When I hear about other people neglecting their blood pressure it makes me very nervous. It kind of frightens me into taking my medication and then I do very, very good."

Jax stated:

> I have always been a very independent type of person and rarely feel reliant on other people to take care of me and I realize that this high blood pressure (pause) so that silent killer really stays on my mind tremendously and although it may not kill you it can impair you. After seeing a guy who was paralyzed, it scared me straight!

Jeanne stated:

> I have learned what the effects of uncontrolled blood pressure can do from patients I encounter in the hospital as a nurse. My mother had a stroke and my dad had two strokes. They are both hypertensive and diabetic. My younger brother as well had a stroke. Because I also have diabetes I am

> scared of getting a heart attack or stroke. That's what scares me most. I feel I should be okay if I keep my blood pressure on the low side.

Carlos explaining his lifestyle stated,

> I do not want to have a stroke. My family lives at stroke city. My father had a stroke, my cousin had a stroke. Ah! Several people in my family have had strokes. I get up at five in the morning put on my walking clothes and walk about two hours. I control what I eat, mostly fish, mostly raw. I have basically cut out dairy.

Lady states "I walk daily and do other forms of exercise regularly. I watch what I eat and I believe this has helped me keep my blood pressure under control." Participants' tended to health despite facing obstacles such as, unemployment, under-employment, economic reverses, lack of health insurance, high cost of prescription medications and an inadequate support system.

Boton states,

> "I was trying to do some big business in South America; it went really well until 2010. Now I work with a friend in his fisheries business, we are there until two in the morning and then I come home and work from home on my own business."

Grace describes her experience with the high cost of medication despite her having health insurance. She states, "I started out on one medication, Diovan which actually controlled my blood pressure effectively, but it's too expensive.

The three pills I am taking now are all generics, only five bucks; there are no generics for Diovan."

Sam states,

> I would like to have gastric bypass surgery with it your high blood pressure is gone and your diabetes is gone, and you can get off the meds. My doctor won't recommend it. He says it's for people three hundred and over, and I don't wanna get there. I don't have health insurance and I can't afford it on my own. You know, I am just struggling on my own trying to lose the weight.

Dan reported that he tried to get health insurance and was told: "Ah, no you are on three medications for blood pressure, if you were on two we could." He further states, "So I went back to the doctor and said could you get these condensed to two pills so that I could be eligible for some form of insurance? I still don't have insurance."

**Daring to Live**

The category "daring to live" emerged as an en vivo code and was later developed into a category. It exemplified the ongoing pattern of action, interaction and emotion that participants' described as their motivation and influence to manage and self-monitor their blood pressure at home. Statements such "seeing my grandchildren grow up," "having normalcy," "lead a full active life" and "live a long healthy life" described these participants key influence for self-monitoring. Despite the experience of overwhelming stress and life pressures

and economic uncertainty living a fulfilling life was a major priority. Carlos described his experience after a health scare of having an above normal result on a medical test, and its effect on his blood pressure:

> I hadn't slept for a whole week fearing a possible negative diagnosis. My blood pressure was up, trending a little high. I went home from the doctor's office after I got the good news that I was okay, downloaded Puccini's song about ah, dare to live, dare to live! …So I am daring to live!

Mackie described his experience regarding high blood pressure and sexual function in men. He stated, I always want to know what happening. I don't want high blood pressure to control me; my highest priority is to stay alive!" Overwhelmingly, participants described high blood pressure as a challenge they had to manage or overcome to stay alive.

## The Core Category

### Daring to Live Under Pressure

Once the concepts and categories were developed and confirmed by the data, *"daring to live under pressure"* emerged as the dominant or core category in this study and was supported by the data. A core category is a representation of the main theme of the research and is the category that links all other categories (Corbin & Strauss, 2008). This core category 'daring to live under pressure' emerged out of liminal cues derived from participants' narratives as they described their day to day experiences with high blood pressure. Based on the data, the core category represents the study findings that the

critical influence for middle-aged Americans in managing and self-monitoring their blood pressure is an unremitting desire to live in the face of overwhelming obstacles to health and irrepressible psycho-social stressors. The desire for physical and biographical survival, to experience generational progression, to reach their full potential in the face of the disabling and deadly outcome associated with this disease was paramount.

Participants were also overwhelmingly influenced by the desire to see their grand-children grow into adults. Those who did not have grandchildren expressed the desire maintain their independence and biophysical (structural and functional) integrity free of disability. This further influenced them to manage and self-monitor their blood pressures. Participants described life pressures as unavoidable. Regardless of these pressures they were motivated to live fully normal lives not merely survive, and that meant that they had to tend to their health while under extreme pressure. Tending to their health meant self-monitoring their blood pressure regularly, taking medication, getting regular medical check-ups, paying attention to lifestyle, and mobilizing their support system when needed.

Furthermore, the core category answers the research question, "What are the critical influences that guide the decision making process? Carlos describes daring to live as critical to managing stress or pressure:

> Almost everyone in my family has been touched by stroke. So I developed an attitude that I did not want to have a stroke so I am going to manage my stress as best as I can. But it got to the point that the stress was just there and there was no easy way to manage it, because it was there!

> There is no way out! It's either live or die! So that's why I monitor, I chose to live.

Daring to live under pressure meant *accepting the diagnosis*. Once participants accepted their diagnoses they became empowered to tend to their health, by committing to a routine of managing and self-monitoring. This included attention to diet, physical fitness, taking medications, having regular medical checkups smoking cessation, reducing stress and developing a support system and most importantly self-monitoring regularly. Participants' disclosed experiencing episodes of higher than normal blood pressures during times of illness requiring more frequent monitoring. Some noted that their blood pressures were reduced with exercise; however, taking medication was the most reliable method of blood pressure control. Overwhelmingly, self-monitoring was reported to be the most reliable indicator of blood pressure status, and was critical to restoring blood pressure normality. Participants also reported that they rarely missed medication doses; and only if they were between prescription refills. The most common reason cited for unintentionally not taking medication was forgetfulness. Experiencing untoward, side effects of medication, and or lack of clarity about medications also resulted in missed doses.

The following conceptual model was constructed to demonstrate the relationship of the core category "daring to live under pressure" to the emergent categories and to illustrate the interconnectedness of these processes. Furthermore, it represents a holistic view of the individual with high blood pressure in this population. Altogether, the categories and core categories represented the process for restoring normalcy and wholeness to these individuals. Accepting the diagnosis represented a cognitive decision.

Daring to live under pressure could be said to represent preserving oneself with the support of others (establishing support system) and one's own self-management abilities (tending to health) as the foundation for achieving normalcy as described by these participants. To arrive at the core category "daring to live under pressure" this researcher carefully examined all memos, concepts, themes, categories and participants narratives for gaps in logic. Stepping back from the data and asking the following questions who, what, when, where and in what context does the phenomenon occur? What are the conditions and consequences associated with these experiences? Using the conditional consequential matrix to analyze the data allowed this researcher to construct a core category that best explains the "high blood pressure experience" and answer the research questions.

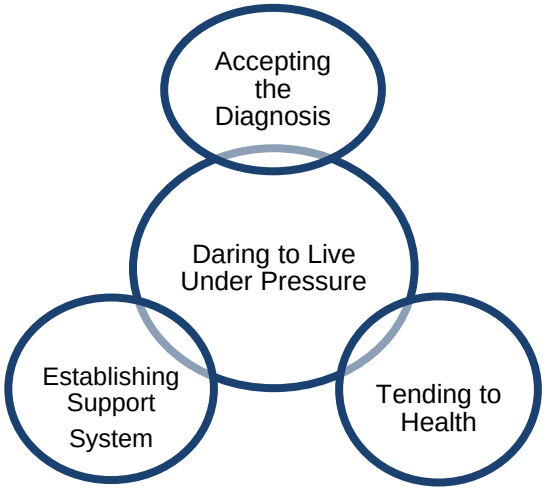



Figure 3. McCurdy, (2013) Conceptual Model Daring to Live Under Pressure

## Chapter Summary

This chapter explained the findings of this study, grounded in data and based on participants' narratives leading to the emergence a core category. These major categories fit within the larger framework and provide insight into the motivation and influences that guide hypertensive middle aged Americans to manage and self-monitor their blood pressure at home. Although the participants verbally expressed their desire to live free of disability; what the data reveled from the interviewees' liminal cues was that having high blood pressure was it itself a potential stressful experience which they felt under pressure to control. Hence, daring to live under pressure provided the best description of the participants experience with high blood pressure. The next chapter will discuss studies relevant to the findings of this study.

# Chapter Five

## Discussion and Conclusion of the Inquiry

### Introduction

The purpose of this study was to explore the critical influences on the management and home self-monitoring of blood pressure among middle-aged hypertensive Americans. Using a qualitative, grounded theory approach, a core category emerged. Symbolic interactionism and pragmatism are the two philosophical underpinning of this study. Blumer (1969) stated, "Symbolic interactionism defines the individual's actions that are influenced by their environment, feelings, attitude and experiences." Therefore, it is the individual's subjective point of view that determines his or her behavior. This chapter discusses the similarities and dissimilarities of current studies with the findings from this study. Also, the significance of this study and its implications for nursing education, nursing practice, nursing research and public policy will be addressed. In conclusion, the strengths and limitations of the study will also be addressed, followed by recommendations for future research. The discussion begins with the dominant categories that emerged.

## Exploration of the Meaning of the Study

Chapters I and II provided a description of the background of the phenomenon. The comparison of the categories with current literature begins with the category *under pressure.* According to the *Merriam-Webster Online Dictionary and Thesaurus*, pressure is defined as, "the burden of physical or mental distress or the constraint of circumstance; the weight of social or economic imposition." This definition provides the most accurate description of these participants subjective meaning of their life experiences and their

experiences with high blood pressure. In this study the predominant pressures that the participants described were economic, personal and job related. Participants who were employed full-time, self-employed, and unemployed described their lives as being under "extreme pressure." Those participants, who were retired, reported that during their working years they held very stressful jobs. Those who considered themselves well off economically described being under pressure to maintain their economic status under changing economic conditions. Those who were un-employed and self-employed described similar levels of pressure relating to their economic states. Those who were employed fulltime described themselves as being under pressure to maintain their current level of employment. Some participants viewed getting the diagnosis of high blood pressure as a form unwelcomed stress. These life stressors experienced by participants in this study have previously been described in the literature.

Higginbottom (2006) identified the concept of "life pressure" as a predominant theme among the ethnic Afro-Caribbean population in the United Kingdom (UK) who had high blood pressure and correlated this pressure with ethnicity. Levenstein, Smith, George & Kaplan (2001) described, "real-life difficulties" such as job strain and job dissatisfaction as contributors to sustained incidence of hypertension in the general population. These finding support the experiences of the participants in this study where five different ethnicities are represented. The relationship between ethnicity, social class occupation, and other social factors and high blood pressure are complex and beyond the scope of this study. However, the participants in this study were mostly professionals or business owners who shared similar experiences with high blood and described

themselves as being under extreme pressure, despite being from different cultural backgrounds.

The category *accepting the diagnosis* of high blood pressure diagnosis meant accepting the risks associated with this condition which empowered participants to focus on their health. The World Health Organization (WHO) defines health as a "state of complete physical, mental and social well-being and not just merely the absence of disease or infirmity" (WHO, 1946). Given this definition, the experience of health includes being fully alive, and having a sense of well-being. According to Erickson's developmental stage for this population, these participants favored productivity and generativity above stagnation. Accepting the diagnosis was a cognitive choice to proceed towards a healthier lifestyle.

The category, *tending to health*, was described by the participants as a means of taking control of their health. This category which was constructed by this researcher from the data where there was an overwhelming sense that participants had little control over their blood pressure in the beginning. Tending to health conferred an ongoing process whereas being in control seemed finite, relative to the many unpredictable psycho-social variables beyond the control of the participants. Tending to health empowered participants to become educated about high blood pressure, medications and the associated effects and side effects, develop a support system and establish an emergency plan as well as adopt a new life style. These accomplishments did not happen all at once, but over time participants developed routines that fit their lifestyles. This new life-style involved taking medication daily, modifying diet, physical activity and blood pressure self-monitoring in the hope of normalizing while still living under pressure with

this chronic condition. Participants in the study viewed tending to health as an ongoing process of self-management. In the literature the closest correlation to tending to health was self-management sometimes also described as self-care. Self-management as defined from the chronic illness perspective is the day-to-day care required to maintain health and is considered a lifetime task (Lorig & Holman, 2003).

High blood pressure is characterized as a chronic illness. *The Shifting Perspective Model of Chronic Illness* developed from a metasynthesis of 292 qualitative research reports focused on chronic physical illness (Patterson, 2001). The researcher revealed that individuals with chronic illness experience shifting perspectives between illness and wellness. Sometimes illness is in their psychological foreground and at other times wellness predominates. In this model wellness is viewed as a dynamic process of being aware of and taking responsibility for making choices that contribute to one's well-being. The implications of this continual shifting between wellness and illness are that people with chronic illness will vary their attentions depending on their experience of symptoms. Since high blood pressure is largely symptomless, home self-monitoring then becomes a key factor in maintaining a wellness perspective in the foreground. These participants were highly focused on wellness through the self-monitoring process and most developed a crisis management plan for illness, and when high readings were obtained. The findings of this study also support Brown, Bartholomew & Naik (2007) that participants tended to health because of risk factors associated with uncontrolled hypertension.

In the literature on self-management of chronic illness, Bury (1982) and Corbin & Strauss (1988) described chronic illness as a disruptive life event that develops insidiously and involves fluctuating symptoms with often uncertain outcome. Access to

information about a disease can influence the impact of the disease and enhance self-management initiatives over the course of the disease; thereby mitigating the disruption and improving the outcome. Access to information can also provide an important practical support system for individuals with chronic illnesses. *Merriam-Webster Online Dictionary and Thesaurus* defines a support system as "a network of people who provide an individual with practical or emotional support." The category *establishing a support system* was constructed from the data as participants described their struggles with blood pressure control when they were first diagnosed and during times of illness. Their support systems included family, friends and significant others who provided emotional support; and healthcare and insurance providers who provided practical support. Participants used the internet as a resource to access information regarding alternatives to prescription drugs, diet, nutritional and exercise information, and to learn about blood pressure parameters. Access to information was key to deciding what monitor to purchase, and to learn about medication effects and side effects.

According to the *American Heritage Dictionary* the word *dare* means "to confront or oppose boldly." *Daring to live* as a category has not been described in the literature. The closest concept is "survival." which is popularly used as a catch phrase and a metaphor to represent the struggle for physical existence. Daring to live in the context of this study represents a challenge to be overcome, it represents boldness and courage and a better fit with the data. "Dare to live" was expressed as an *in vivo* code that was later developed into a category from constant comparative analysis of the data, memos and codes and the use of the conditional consequential matrix described by Juliet Corbin in the *Basics of Qualitative Research,* (Corbin & Strauss 2008).

## Interpretive Analysis of the Findings

### The Analytic Story

This story is derived from methodical memos in order to lay the foundation and conceptual structure based on the categories and sub-categories that were constructed from participants' narratives. It represents a summation of the participants' story constructed from the data provided by the participants. The purpose of this study was to explore the critical influences on the management and home self-monitoring of blood pressure among middle-aged hypertensive Americans. Using the grounded theory techniques of Corbin & Straus (2008) participants narratives were coded and analyzed. Participants described their experiences with high blood pressure in colorful detail and with verbal intensity resulting in rich thick data.

The "high blood pressure experience" can be thought of as a challenge to the usual way of life. It is a condition to be taken seriously. Individuals were aware that it is regarded as a "silent killer." These words put dread and fear in the minds of these individuals. It created images of sudden death or at the very least unalterable disability. High blood pressure was its own entity, a force to be reckoned with so to speak. However, individuals came to realize that once they accepted the diagnosis it was a manageable health condition that required diligence, and self-responsibility in partnership with others. It was no longer something to be feared but rather to be confronted, embraced, and managed. They also recognized that they could not manage it alone, they needed a support system. Individuals in this study came from diverse backgrounds and cultural experiences, yet they shared similar experiences with high blood pressure and their experience of life stress. Ultimately, they all recognized that they had to 'live with

it." Hence it became a "dare" a challenge to be on top of it and to win in the end by living a healthy fulfilling life on their terms. In the end their influence for managing and monitoring was to live a healthy fulfilling life, not just mere survival.

Participants brought a sense of competitive motivation and drive from their professional life to the management of their new although undesired challenge. They described a professional and personal life of extreme stress and a personal life of worry about themselves and the wellbeing of their significant others. High blood pressure caused them to pause and reflect on the future trajectory of their life and possibly a change of course or strategy, requiring attention to their own well-being.

The axial and selective coding categories getting the diagnosis, exploring causation and denial vs. acceptance were submerged in selective coding as "*accepting the diagnosis*" when it became evident that these categories were sub-categories of a broader more encompassing theme. Participants had to reconcile issues and questions of why, and arrive at the task of accepting the diagnosis in order to move forward with the goal of establishing normality.

Finally, in validating the scheme, this researcher randomly choose three participant interviewees to review the findings, categories and core category. These participants agreed with the process and results of the analysis. Saturation was achieved after 10 interviews. Three additional cases were selected in an effort to find negative cases and provide adequate variation in themes. No true negative cases were discovered however, the goal of adequate variation was achieved and expressed in the participants' points of view.

## Implication of the Study for Nursing Knowledge

### Nursing Education

The information and education regarding high blood pressure was obtained by participants when they were first diagnosed and was derived predominantly from self-study, and talking to friends and family members. Some individuals sought information from their healthcare practitioner on what monitoring device to purchase, how to use the device, and the recommended self-monitoring schedule. Half of the participants reported that their healthcare professionals showed disinterest in their self-monitoring and discussing their results. Others stated that their primary care practitioner discouraged them from self-monitoring altogether. Some participants raised questions to this researcher regarding the variability of their blood pressure and the meaning of the difference in readings from left arm to right arm. In addition study participants inquired about nutrition dietary practices and the role of salt in blood pressure management. Nurses who are educated in the various aspect of blood pressure monitoring can provide accurate up to date information to patients regarding blood pressure monitoring and other aspects of blood pressure care. It is important that nurses remain engaged and are able to provide accurate information to patients regarding blood pressure management. It is also important that nursing students are taught the appropriate methods for measuring blood pressures, as accuracy is important despite the variable nature of blood pressure itself. Practicing nurses can benefit from continuing education courses on blood pressure management and care in response to issues raised in this study. The development of a comprehensive continuing education program on blood pressure management could benefit practicing nurses as well as nurse educators. Nurses can also educate physicians

regarding the issues and concerns of patients and the information patients are seeking to better manage their blood pressure.

**Nursing Practice**

A few key points need to be made regarding these findings and the implications for practice. The first practice recommendation is that healthcare professionals discuss self-monitoring with patients and mutually develop a plan that fits into the participant's self-management regimen. Participants reported that encouragement from their healthcare providers motivated them to manage and self-monitor at home. The second recommendation is that healthcare providers are aware that the nature of their discussions will change based on where the patient is in the self-monitoring process as their experience will change over time. Daley et al., (2009) suggests that stage related education and counseling in women with elevated blood pressure improved exercise outcomes and facilitated the maintenance of regular exercise. Participants in this study experienced distressing emotions when facing higher than normal blood pressure readings. Therefore, health care providers who are cognizant of the emotional struggles of patients with high blood pressure may be more effective during their interactions with these patients if their provider encounters center on reflective questioning, listening, and discussion rather than merely physiological facts. In addition, encounters that explore patients' perceptions, and beliefs, may assist in dispelling myths patients may have about blood pressure management, self-monitoring and medication adherence. Participants in this study disclosed their beliefs regarding their diagnosis, perception and myths about high blood pressure. Providing educational and or support sessions facilitated by a nurse specialist could benefit patient at varying stages in management and self-monitoring

process. Long term support could be made available via alternative formats such as telephonic-health and or web based mechanisms or peer support groups.

**Nursing Research**

Nursing research informs nursing education and nursing practice therefore the implications of these finding for nursing research are set forth in the next section as recommendations for further research in this area. However, the phenomenon of being under pressure as described by the participants in this study merits further investigation. This excessive stress response has been described previously in the nursing literature as *stress overload* (Lunney, 2006). Further research and concept development may be needed to establish a nursing diagnosis relating to this extreme stress response. To date there are no nursing diagnosis pertaining to this intense and sustained stress experience in the classification of diagnoses developed by the *NANDA International Diagnostic Classification* (2005). The current diagnoses *of ineffective coping or powerlessness* do not fully capture the precise interpretation of the level of stress described by these study participants. This included economic, psychological and personal stressors that were extreme in nature. Further nursing research is needed to formalize a precise and accurate nursing diagnosis, with appropriate interventions and possibly a measurement scale in order to expand the knowledge and awareness of this level of stress described by these study participants. Having an appropriate nursing diagnosis would bring attention to this phenomenon and influence interventions that could assist patients in managing stress. This could lead to recommendations that individuals who are experiencing high levels of stress may need to self-monitor their blood pressure as a preventative measure to avoid hypertension risks.

## Recommendations for Further Research

The following recommendations for further research are made as a result of the findings of the study:

1. Replicate the study in a different population to compare and contrast with the results of this study.
2. Develop and test an instrument from these data to be used to identify correlates of successful self-monitoring. This instrument could be used in a study to correlate successful self-monitoring and blood pressure control.
3. Further develop a theory of management and self-monitoring from this study.
4. Develop an interventional study to evaluate the effects of various educational and behavioral strategies on blood pressure control.
5. Explore healthcare professionals' attitudes and guidance provided to patients regarding blood pressure self-monitoring.
6. Quantitatively explore factors such as age, duration of diagnosis and the effects of educational level intervention on blood pressure control.
7. Pre-test post-test education interventional study to assess blood pressure knowledge.

## Public Policy

There is a need for innovative public policy and programs that are progressive and responsive to needs of individuals' with high blood pressure both on the international, national and state level. In light of the findings of this study, any public policy could involve the private sector, industrial designers, city planners, insurance companies,

healthcare professionals and other disciplines in creating work and living environments that reduce stress and promote health.

The AHA in collaboration with professional organizations in healthcare have developed and published guidelines and statements that can be used as policy statements for advocacy and planning related to hypertension management. The JNC-7 guidelines represent the gold standard for the medical management of high blood in the United States; however, besides the Healthy People 2020 Initiatives there are no national public policies relating solely to hypertension alone. Finally, some participants in this study reported that their health insurance did not provide reimbursement for the purchase of their blood pressure monitoring devices. Making blood pressure monitors more available and at a reduced cost to all individuals with high blood pressure may encourage early self-monitoring. At the very least allowing for discounts or subsidies on monitoring devices for individuals who are un-employed or under-employed would eliminate cost as a barrier for these individuals. This may potentially lead to early diagnosis and the prevention of disabling effects.

Individuals who were self-employed or unemployed, who did not have health insurance, reported experiencing difficulty obtaining prescriptions blood pressure medication, and monitoring devices. These reported obstacles to care caused additional stress for study participants. Expanded workplace screenings, affordable medication options, and universal health insurance may afford easier access to blood pressure treatment, reduce inequities and improve blood pressure outcomes and quality of life for middle-aged hypertensive Americans. Hospitals and healthcare facilities can organize and offer blood pressure monitoring programs and educational classes. Individuals concerned

about their blood pressure can join a monitoring program for a nominal fee and be educated as well as receive social support. Healthcare facilities can use their buying power to offer blood pressure monitors at reduced cost to members of their monitoring programs.

## Strength and Limitations of the Study

As with all research there are strengths and limitations to this study. A strength of this study is that a conceptual framework emerged that described the experiences of middle-aged Americans with high blood pressure which have previously not been fully described or documented in the literature. Since a theory was not discovered in the literature that addressed the critical influences of management and self-monitoring of blood pressure, in this population, this study has provided a conceptual framework supporting these influences that emerged from the data. Furthermore, this study may aid in developing strategies to improving nursing and medical care to this population by targeting their specific education and care needs. This target population has been largely underrepresented in hypertension studies; whereas this study is specific to this population. Much of the research on hypertension is quantitative in nature and focuses on older adults with hypertension. The literature on chronic illness also focuses on older adults despite the alarming statistics associated with this condition where heart disease and stroke are among the top five causes of disability and death in the US and the evidence is that these diseases develop in the middle years is indisputable (Martin, Freedman, Schoeni, & Andreski, 2010).

Another strength of the study is that once the data was transcribed, a second meeting was conducted with the participants; this gave each participant an opportunity to review and edit the transcription. This process assured that the descriptions of the participants were correct, a process known as member checking (Creswell, 2007). The dominant categories that emerged were synchronous with the participants narratives and added completeness to the conceptual framework which Creswell, (2007) describes as transferability and "good fit" for the phenomenon studied. Confirmability was achieved by the data analysis process and extensive memos written by this researcher. The analytic story (Appendix H) delineates the researcher's thought process in developing the categories and gives further credibility to the study.

Finally, the derived analytic, conclusions were reviewed by three participants in the study who were randomly selected by this researcher in order confirm the emergent categories and findings. All three participants independently approved of the findings and conclusions as a fitting description of their collective experiences.

There are limitations to this study as well as strengths. The following limitations relate to the study sites and the data collection process. All participants for this study were initially to be recruited from the wellness centers of a university located in a major metropolitan city in the Southeastern United States. Recruitment flyers were posted throughout the wellness centers but only six participants who responded to the flyer were recruited from the wellness centers. The other participants were recruited predominantly via snowball sampling. Participants referred other participants and some participants were recruited from acquaintances of the researcher. The researcher noticed that two of the participants possessed similar characteristics and described their monitoring

experiences in a similar manner. The researcher then purposely sought out different contacts to seek participants with different characteristics and provide a variety of descriptions with self-monitoring.

In retrospect, the similar experiences described by these early participants were most likely not a reflection of their familiarity with each other. The early participants' descriptions were similar to the descriptions of others interviewed later on who did not know each other. The methodology itself may be deemed a limitation. Grounded theory is a robust method to explore complex phenomena such as feelings, thought processes and experiences, but there is reliance on recall and self-report of shared information. Some participants had been diagnosed more than ten years ago, and the argument could be made to question the preciseness of their recollections. While being interviewed some participants made statements such as "that was while ago" when referencing specific management and self-monitoring practices. However, importance was placed on their summative reflections as the key to their prior experiences. The study targeted middle age Americans and the findings are specific to this group only. Findings may be different in other age groups, or in other populations and this also represents a limitation of the study.

Another possible limitation of this study is that as a novice researcher, following the guidelines of Strauss & Corbin (2008) grounded theory method; it is possible that this researcher's interviewing skills and note taking, during interviews may have hindered participants' full disclosure and limited their responses during the interview process. Although a researcher has to be aware of participants' reactions during interviews, the researcher must also be able to take notes without distracting interviewees. At the end of the first interview the participant began speaking extemporaneously about his experiences

with smoking cessation and bypass surgery whereas during the interview he was more guarded. He gave permission to continue the recoding and his experiences were captured and included in the data. This experience assisted this researcher in preparation for subsequent interviews thereby limiting the researcher's obstruction of the interview process.

Another limitation of the study refers to the role of the researcher in qualitative research and the effects of subjectivity on the data where the researcher is the instrument. This researcher followed the guidelines of the grounded theory methodology at every stage from data collection through analysis and interpretation. To identify researcher bias and hold my assumptions in abeyance this researcher wrote extensive memos on personal feelings and judgments prior to during and after the analytic process. Using the constant comparative method of analysis this researcher objectively examined the subjective statements from participants. This process is useful in reducing researcher bias, while allowing for sensitivity to the participants reported experiences with the phenomenon under study. A goal in this research is to add new knowledge, describe the participants' experiences and possibly generate a theory about these experiences.

Finally, identifying negative cases that did not fit the pattern described by the participants in this study would allow for alternative explanations of the phenomenon in question and add dimension to the study. This could provide for a fuller exploration of the emerging concepts and may have limited the richness and variation in participants' points of view. However, there were some variation in participants' narratives and experiences, but no true negative cases were discovered.

In summary, despite these limitations, this study will add to the body of knowledge on hypertension management and self-monitoring and bring attention to this under studied population. Furthermore, the findings could assist nurses in targeting care to hypertensive patients in a more specialized manner. For the benefit of patients who are struggling with management and self-monitoring, understanding the process may help healthcare providers develop strategies that can aid patients in achieving target blood pressure goals.

### Chapter Summary

This chapter discussed the congruency between current literature and the findings of the study and revealed similarities and dissimilarities to the categories that emerged. Furthermore, it discussed the implications for nursing education, practice, research, and public policy as well as the strengths and limitations of the study and provided recommendations for further study.

## Conclusion

The findings from this qualitative study which used a grounded theory tradition to un-cover the critical influences on the management and home self-monitoring of blood pressure among middle-aged hypertensive Americans revealed three dominant categories and a core category derived from 13 participant interviews. The rick thick descriptions were analyzed using Corbin & Strauss (2008) grounded theory framework. Three sub-categories getting the diagnosis, establishing causation and acceptance vs. denial were submerged into the category “accepting the diagnosis” leading to the construction of three main categories from the data that linked the core category. The three emergent

categories are: accepting the diagnosis, establishing a support system, tending to health and a core category of daring to live under pressure. The explorations of the meaning of these categories and the diagrams developed, have illustrated their interconnectedness to the core category *daring to live under pressure.*

The aim of developing a theory from this study was not achieved. However, the findings from this descriptive analysis could provide insight into what middle-aged hypertensive Americans feel and think about high blood pressure management and self-monitoring. The core category "daring to live under pressure" explained the critical influence for managing and self-monitoring in this population and the emergent categories explained the process utilized in blood pressure management. Finally, this study described the management and self-monitoring experiences of middle-aged hypertensive Americans in their own words and from their own perspectives.

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*Appendix A*

Letter of Permission from Barry University IRB

BARRY UNIVERSITY

11300 NE Second Avenue
Miami Shores, FL 33161-6695
**phone** 305-899-3020
800-756-6000, ext. 3020
**fax** 305-899-3026
www.barry.edu

OFFICE OF THE PROVOST
INSTITUTIONAL REVIEW BOARD

Research with Human Subjects
Protocol Review

| | |
|---|---|
| Date: | July 5, 2012 |
| Protocol Number: | 120615 |
| Title: | A Grounded Theory Study exploring the "Critical Influences on the Management and Home Self-Monitoring of Blood Pressure among Middle-Aged Hypertensive Americans. |
| Meeting Date: | June 20, 2012 |
| Researcher Name: | Ms. Rosalee McCurdy |
| Address: | 21325 SW 89th Place<br>Cutler Bay, FL 33139 |
| Faculty Sponsor: | Dr. Mary Colvin |

Dear: Ms. McCurdy:

On behalf of the Barry University Institutional Review Board (IRB), I have verified that the specific changes requested by the convened IRB on June 20, 2012 have been made.

It is the IRB's judgment that the rights and welfare of the individuals who may be asked to participate in this study will be respected; that the proposed research, including the process of obtaining informed consent, will be conducted in a manner consistent with requirements and that the potential benefits to participants and to others warrant the risks participants may choose to incur. You may, therefore, proceed with data collection.

As principal investigator of this protocol, it is your responsibility to make sure that this study is conducted as approved by the IRB. Any modifications to the protocol or consent form, initiated by you or by the sponsor, will require prior approval, which you may request by completing a protocol modification form.

It is a condition of this approval that you report promptly to the IRB any serious, unanticipated adverse events experienced by participants in the course of this research, whether or not they are directly related to the study protocol. These adverse events include, but may not be limited to, any experience that is fatal or immediately life-threatening, is permanently disabling, requires (or prolongs) inpatient hospitalization, or is a congenital anomaly cancer or overdose.

The approval granted expires on June 30, 2013. Should you wish to maintain this protocol in an active status beyond that date, you will need to provide the IRB with and IRB Application for Continuing Review (Progress Report) summarizing study results to date. The IRB will request a progress report from you approximately three months before the anniversary date of your current approval.

If you have questions about these procedures, or need any additional assistance from the IRB, please call the IRB point of contact, Mrs. Barbara Cook at (305)899-3020 or send an e-mail to dparkhurst@mail.barry.edu . Finally, please review your professional liability insurance to make sure your coverage includes the activities in this study.

Sincerely,

Doreen C. Parkhurst, M.D., FACEP
Chair Institutional Review Board
Associate Dean, SGMS &
Program Director, PA Program
Barry University
Box SGMS
11300 NE 2nd Avenue
Miami Shores, FL 33161

Cc: Dr. Mary Colvin

*Appendix B*

Study Site Approval Letters

UNIVERSITY
OF MIAMI

Department of Wellness and Recreation
Patti and Allan Herbert Wellness Center
1241 Dickinson Drive
Coral Gables, Florida 33146
Ph: 305-284-3253
Fax: 305-284-4469

June 6, 2011

To whom it may concern,

This letter serves as approval for Rosalee McCurdy to use the Herbert Wellness Center as a participant recruitment site for her study entitled: *"Influences on Middle Aged Hypertensive Americans' Management and Monitoring of Their Blood Pressure at Home"*. This approval includes flyer distribution throughout the facility and/or supervising an information table.

Wellness
CENTER & PROGRAMS
UNIVERSITY OF MIAMI HEALTH SYSTEM

June 13, 2011

Rosalee E. McCurdy, MSN
School of Nursing
University of Miami
5030 Brunson Dr.
Coral Gables, FL 33124

Dear Ms. McCurdy,

In reference to your request for access to the Medical Wellness Center, I am happy to grant access to you for the purpose of conducting a study for your dissertation titled: Influences on Middle Aged Hypertensive Americans' Management of Hypertension and Monitoring of Their Blood Pressure at Home. You now have permission to recruit participants for your study from the University of Miami Medical Wellness Center. In addition you may provide flyers with information about the study and your contact information for those who wish to participate.

Sincerely,

Gail Haldeman, MPH
Director

Clinical Research Building
1120 NW 14th Street, 9th Floor | Miami, FL 33136
Phone (305) 243-6500 | Fax (305) 243 7301
wellness.med.miami.edu

*Appendix C*

Recruitment Flyer

**Participants Wanted for Research Study**

Rosalee McCurdy a doctoral nursing student at Barry University, Miami Shores Florida invites you to participate in a research study to explore the critical influences on the management and home self-monitoring of blood pressure among middle-aged hypertensive Americans.

**Study Participation Includes**

One face-to-face interview with the researcher lasting approximately 90 minutes.

One follow-up interview lasting approximately 60 minutes to check the transcription data of the first interview.

A $5.00 gift card as a token of appreciation for your time.

All interviews will be conducted in person and confidential.

**You May Participate If:**

You are between the ages of 40-65

Speak English fluently

Have high blood pressure or take medication for high blood pressure

Check your own blood pressure at home at least once a month

*Appendix D*

Participant Consent-Individual Interviews

**Barry University**

**Informed Consent Form**

You are being asked to participate in a research study. The title of the study is "Critical Influences on the Management and Self-Monitoring of Blood Pressure Among Middle-Aged Hypertensive Americans." The research is being conducted by Rosalee McCurdy a doctoral nursing student in the College of Health Sciences, Division of Nursing at Barry University, who is seeking information that will be useful in helping healthcare providers improve care for patients with high blood pressure as well as helping to empower people with high blood pressure manage and self-monitor their blood pressure at home.

The aim of this study is to collect information from middle-aged individuals with high blood pressure by interviewing them regarding their experiences with managing and self-monitoring their blood pressure at home. As a result of these interviews discover what process they utilize and what influences them to manage and self-monitor their blood pressure. In accordance with these aims a theory could be developed that may be useful in guiding effective interventions to help individuals with high blood pressure achieve better blood pressure control.

To be included in this you must be a male or female between the ages of 40-65 and report that you self-manage and self-monitor your blood pressure a minimum of once

a month. You must monitor your own blood pressure at home. You must be fluent in English and have a diagnosis of hypertension or on medication for high blood pressure.

You may not participate in this study if you are not fluent in English and do not self-manage and self-monitor your blood pressure at home at least once a month. If you only monitor your blood pressure outside of your home, such as the local pharmacy or fire station, or at a medical office or clinic you cannot participate in this study. If you self-monitor your blood pressure less than once a month you may not participate in this study. If you are under 40 years of age or over 65 years old you are not eligible to participate in the study.

Once you agree to participate in the study and have met all the previously mentioned criteria for participation you will be asked to complete a short questionnaire that will provide demographic information. You will then be asked to meet with the researcher for a face-to-face audio-taped interview lasting approximately 90 minutes. The interview will be held at a mutually agreed on private location free of distractions, where you will then be asked to talk about your blood pressure management and self-monitoring practices. The interview will be conducted using open-ended questions, related to the topic. At the first interview you will be asked to select a pseudonym to protect your identity. This pseudonym will be used throughout the study.

Once the audio-taped information from the interview has been put in written form by this researcher, you will be contacted either by phone or email for a second meeting to be scheduled approximately two weeks later after the initial interview. This is an opportunity an opportunity for you to confirm, delete or change the information that

was transcribed. The second meeting will last approximately one hour. It is anticipated the number of participants in the study will be no more than thirty, and the study will continue until sufficient information (data) is obtained from all participant interviews. At the end of the second meeting you will receive a $5.00 gift card as a token of appreciation for your participation in the study.

Your consent to be a research participant is strictly voluntary (your own choice) and you will not be penalized in any way if you decline to participate in the study or choose to drop out at any time during the study, there will be no adverse effects on your health. You have the right to refuse to answer a particular question (s) or request that the tape recorder be paused or turned off at any time during the interview.

Although there are no known risks associated with this study it is possible that due to the sensitive and personal nature of this health issue you may experience unexpected emotional responses such as mild anxiety when giving information about your personal experiences with managing and self-monitoring your high blood pressure. The following procedures will be used to minimize these risks: Should you experience discomfort (emotional or otherwise); you will be asked if you wish to continue with the study. At any time during the study you have the right to discontinue the interview, stop the recording, withdraw consent for all of the study or request that parts of the interactions be excluded from the write-up (analysis) of the study. As there are no risks to your participation in this study, no benefits can be promised for your participation in this study. There are no costs associated with your participation in this study and your participation is voluntary (your own choice).

As a research participant, information you provide will be held in confidence to the extent permitted by law. Your signed consent will be kept separately from the data. All data will be destroyed after five years. Any published results of the interview will be in aggregate form (combined) using only the pseudonym that you select or one that was assigned to you. When the results of this study are published, excerpts from the interviews may be used to illustrate findings of the study.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Rosalee McCurdy, at (305) 971-2540 or my dissertation chair, Dr. Mary Colvin at (305) 899-3039 or the Institutional Review Board point of contact, Barbara Cook, at (305) 899-3020. If you are satisfied with the information provided and are willing to participate in this research, please signify your consent by signing this consent form.

I acknowledge that I have been informed of the nature and purpose of this study by Rosalee McCurdy and that I have read and understand the information presented above, and that I have received a copy of this form for my records. I give my voluntary consent to participate in this study.

_____ _____

*Signature of Participant* *Date*

_____ _____

*Researcher* *Date*

**Certification**

I certify that the protocol and method of obtaining informed consent as approved by the Barry University Institutional Review Board (IRB) will be followed during the period covered by this research project. Any future changes will be submitted to IRB review and approval prior to implementation.

Rosalee McCurdy MSN, RN

_____ _____

*Principal Investigator* *Date*

*Appendix E*

Demographic Data Collection Form

This questionnaire consists of personal and information as well as historical data. The personal and historical information is related to your experiences with managing and self-monitoring your blood pressure. Please circle or write the appropriate response below.

Participant ID _____ (Pseudonym)

1. What is your Age? _____
2. What is your Gender?
    a. Female
    b. Male
3. What is your Marital Status?
    a. Single
    b. Married
    c. Separated
    d. Divorced
    e. Widowed
4. What is your Educational Level (highest grade completed)?
    a. High School/GED
    b. Trade/Vocational School
    c. Associate Degree
    d. Bachelor Degree
    e. Post Graduate
    f. Other_____

5. What is your Employment Status?
    a. Employed full-time
    b. Employed part-time
    c. Retired
    d. Un-employed
6. Which of the following best describe your ethnicity?
    a. American Indian
    b. Alaska Native
    c. Afro-Caribbean
    d. Asian
    e. Black/ African American
    f. Hispanic or Latino
    g. Pacific Islander
    h. White
    i. Other_____
7. How long have you had high blood pressure?

    _____Years

    _____Months

8. How long have you been checking your blood pressure at home?

    _____Years

    _____Months

9. Rate how easy or difficult it is for you to check your blood pressure at home on a scale of 1-10? (1 being the easiest and 10 being the most difficult).

Easy 1 2 3 4 5 6 7 8 9 10 Difficult

10. Has anyone close to you suffered complications relating to high blood pressure?
    a. Yes
    b. No

*Appendix F*

Guide for Interview Questions

The purpose of this interview is to explore the influences on the management and self-monitoring of blood pressure at home among middle-aged hypertensive Americans. There is no right or wrong answer to these questions.

1. Can you tell me who or what if anyone influenced your actions to manage and self-monitor your blood pressure at home?
2. Can you describe your current routine of managing and monitoring your blood pressure at home?
3. Can you tell me what it was like when you first started to manage and self-monitor your blood pressure at home?
4. What happened next?
5. Has anything changed over time since you started monitoring your blood pressure at home?
6. What thoughts come to your mind when you see a (high or low or normal) blood pressure reading on the blood pressure monitor?
7. Besides monitoring your blood pressure what else do you do to manage your blood pressure?
8. How does the feedback from your blood pressure reading fit in with other things you are doing to manage your blood pressure?
9. Could you describe the most important lessons you have learned from self-monitoring your blood pressure at home?

10. What would you describe as the most difficult thing about having high blood pressure?
11. What does having high blood pressure mean to you?
12. What advice would you give to someone with high blood pressure regarding self-management and self-monitoring blood pressure at home?
13. Is there anything else that I should know or understand about your managing and self- monitoring your blood pressure?
14. Is there anything else you would like to ask me?

*Appendix G*

JNC-7 Stages of Hypertension (High Blood Pressure)

| Stages of Hypertension | Persistent Systolic Blood Pressure Reading | Persistent Diastolic Blood Pressure Reading | Recommendations |
|---|---|---|---|
| Normal | Less than 120 | Less than 80 | 1. None |
| Pre-hypertension | 120-139 | 80-89 | 2. Healthy lifestyle |
| Stage I | 140-159 | 90-99 | 3. Medication plus #2 |
| Stage II | 160 and above | 100 and above | 4. Medication (two or more) plus #2 |

*Appendix H*

# CURRICULUM VITAE

## HIGHER EDUCATION

***Ph.D. Nursing 2013***

Barry University: 11300 NE 2nd Avenue, Miami Shores, FL 33161.

***Master of Science Nursing 2006***

Barry University: 11300 NE 2nd Avenue, Miami Shores, FL 33161.

***Bachelor's Degree Psychology/Nursing 1977***

Western Connecticut State University 181 White St. Danbury, CT 06810.

## EMPLOYMENT EXPERIENCE

- **Adjunct Faculty:** (1/2013-Present) Miami Dade College School of Nursing
- **Education Consultant:** (2000-present) CEOntime.com. Web based continuing education for nurses, acupuncturist, and massage therapist.
- **Lecturer:** (8/2006 -5/ 2012). University of Miami School of Nursing and Health Studies. Miami FL 33143.
- **Director of Education & Staff Development** (1995-2000). Larkin Community Hospital, Miami FL 33143.
- **Director/Endoscopy:** (6/1982-8/1995) Doctors' Hospital, Coral Gables, FL 33143.