

January 2013

Patients' Perspectives in Following Hypertensive Guidelines on Sodium Intake and Lifestyle Modifications in Panama

Lisette Raquel Chang

University of South Florida, chang.lisette@gmail.com

Follow this and additional works at: <http://scholarcommons.usf.edu/etd>

 Part of the [Public Health Commons](#)

Scholar Commons Citation

Chang, Lisette Raquel, "Patients' Perspectives in Following Hypertensive Guidelines on Sodium Intake and Lifestyle Modifications in Panama" (2013). *Graduate Theses and Dissertations*.

<http://scholarcommons.usf.edu/etd/4652>

This Thesis is brought to you for free and open access by the Graduate School at Scholar Commons. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Scholar Commons. For more information, please contact scholarcommons@usf.edu.

Patients' Perspectives in Following Hypertensive Guidelines on Sodium Intake and
Lifestyle Modifications in Panama

by

Lisette Raquel Chang

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Science in Public Health
Department of Health Policy and Management
College of Public Health
University of South Florida

Major Professor: Dawood H. Sultan, Ph.D.
Deanna Wathington, M.D., M.P.H.
Gabrielle Britton, Ph.D.

Date of Approval:
June 19, 2013

Keywords: Qualitative study, knowledge of lifestyle recommendations,
compliance with lifestyle recommendations, sodium intake knowledge, sodium intake
barriers

Copyright © 2013, Lisette Raquel Chang

Dedication

I dedicate this thesis to my mother, Mayra, for walking along with me through all the moments of my life and for keeping me focused in my dreams with unconditional love; to my husband, Roderick and my son, Miguel Angel; my one love, my source of inspiration and strength to continue believing that one can make the difference.

It takes the love of one to plant a tree, the persistence of roots to make it grow, a strong trunk to keep it standing and a crown of leaves to succeed in persevering through time and to continue reaching for the sky.

Acknowledgments

I would like to express the deepest appreciation to my Professor and friend, Dawood H. Sultan, who has contributed in countless aspects of my thesis and who increased my knowledge and curiosity for various aspects of life.

I would like to thank my committee members, Professor Deanna Wathington and Professor Gabrielle Britton, for their generous inputs and efforts to aid me in gaining this degree.

Special thanks to Professor Kate Wolfe-Quintero for giving coherence and meaning to my words, to Professor Carol Bryant for her selfless support, to Annette Chilton for her everyday care to adapt to a new environment, to my friends Ana Victoria and Mirian who supported me through the decision of my career development and, to the proactive collaborators at the National Bank of Panama who opened their doors for me to explore and develop my thesis.

Table of Contents

| | |
|--|----|
| List of Tables..... | iv |
| List of Figures..... | v |
| Abstract..... | vi |
| Chapter 1: Introduction to the Study | 1 |
| Overview of Hypertension | 1 |
| Statement of the Problem | 2 |
| Justification..... | 3 |
| Chapter 2: Literature Review | 7 |
| Overview of Background..... | 7 |
| Perception of Hypertension..... | 9 |
| Lifestyle Modifications..... | 10 |
| Sodium Intake..... | 12 |
| Theoretical Framework | 14 |
| The ecological perspective | 14 |
| The health belief model..... | 14 |
| The transtheoretical model..... | 14 |
| Grounded theory..... | 15 |
| Chapter 3: Research Methodology | 16 |
| Overview of the Methodology..... | 16 |
| Research Questions | 16 |
| Research Design | 17 |
| Population..... | 17 |
| Sample and Setting..... | 17 |
| Eligibility Criteria | 18 |
| Inclusion criteria..... | 18 |
| Exclusion criteria..... | 18 |
| Recruitment Strategy | 18 |
| Informed Consent | 19 |
| Incentives / Time Reimbursement..... | 20 |
| Instrument..... | 20 |
| Data Collection | 21 |
| Analysis | 22 |
| Quality of Results..... | 23 |
| Chapter 4: Results..... | 25 |
| Overview of Results | 25 |

| | |
|--|----|
| Participants' Profile Overview..... | 25 |
| Participant 0102. | 25 |
| Participant 0103. | 26 |
| Participant 0104. | 26 |
| Participant 0106. | 26 |
| Participant 0107. | 27 |
| Participant 0108. | 27 |
| Participant 0109. | 27 |
| Participant 0110. | 28 |
| Participant 0111. | 29 |
| Participant 0112. | 29 |
| Participant 0113. | 29 |
| Participant 0114. | 29 |
| Perspectives of Being a Hypertensive Patient..... | 30 |
| Emotional hypertension..... | 30 |
| Time bomb..... | 31 |
| Lack of control..... | 32 |
| Silent killer..... | 34 |
| Knowledge of Lifestyle Recommendations..... | 36 |
| Pharmacological treatment..... | 37 |
| Non-pharmacological treatment..... | 37 |
| Barriers to Follow Lifestyle Modifications..... | 39 |
| Time..... | 39 |
| Cost..... | 40 |
| Accessibility..... | 40 |
| Social support..... | 40 |
| Sodium Intake Knowledge..... | 41 |
| Making choices..... | 43 |
| Tasting to fit..... | 44 |
| Barriers to Salt Intake Management..... | 46 |
| Taste..... | 47 |
| Measure..... | 47 |
| Can't control how others cook..... | 48 |
| Balancing through the day..... | 48 |
| Access to healthy sodium-reduced meals..... | 49 |
| Chapter 5: Discussion..... | 50 |
| Overview..... | 50 |
| Motivations to Follow Hypertensive Guidelines..... | 50 |
| Patients' Mode of Managing Hypertension..... | 51 |
| Committed..... | 51 |
| Compromise..... | 52 |
| No treatment..... | 53 |
| Lifestyle Recommendations: Knowledge and Barriers..... | 53 |
| Stress management..... | 53 |
| Weight management and healthy eating..... | 54 |
| Individualization and obtainable goals..... | 54 |
| Environmental factors..... | 57 |
| Sodium Intake Recommendation: Knowledge, Barriers and Coping | |
| Strategies..... | 58 |
| Gaps in sodium intake knowledge..... | 58 |

| | |
|--|----|
| Lack of practicality of guidelines..... | 59 |
| A call for help..... | 60 |
| Theory of Reinforcement..... | 61 |
| Strength and Limitations..... | 63 |
| Chapter 6: Conclusion and Recommendations..... | 65 |
| Recommendations for Action..... | 66 |
| Recommendation for Further Studies..... | 68 |
| References Cited..... | 70 |
| Appendix A: Invitation Letter..... | 79 |
| Appendix B: Interview Guide..... | 80 |
| Appendix C: Institutional Review Board Letter of Approval..... | 80 |
| Appendix D: Institutional Review Board Amendment Letter of Approval..... | 82 |

List of Tables

| | |
|--|----|
| Table 1. Comparison of daily recommended limits for sodium intake in healthy adults..... | 13 |
| Table 2. Participants' Profile | 28 |
| Table 3. Source and practicality of knowledge to manage sodium intake on daily basis | 44 |

List of Figures

| | |
|---|----|
| Figure 1. Theory of Reinforcement | 63 |
|---|----|

Abstract

The purpose of this study was to explore patients' perception and knowledge regarding hypertension and hypertensive guidelines on sodium intake and lifestyle modifications in a work environment in the Republic of Panama. Hypertension is important not only because of its high prevalence but also because it is a major modifiable risk factor for cardiovascular diseases. In Panama the prevalence of hypertension is about 38.7% and uncontrolled hypertension is almost 50%. This number may translate into complications for the general population. For instance 52.8% of the population has had an ischemic disease and death by ischemic disease climbed from third place to second place from 2009 to 2010. This qualitative study used an exploratory approach and semi-structured in-depth interviews to answer the research questions. A purposive sample included woman with a hypertension diagnosis, between 30 to 59 years of age, and working in a single organization. A constant comparative analysis was used to search for themes grounded in the data. Emerging themes illustrated that participants perspectives of hypertension had become their drives towards the management of their disease and throughout their daily lives constant different factors played the role of motivating or discouraging their non-pharmacological treatment. Participants had also provided a list of barriers and coping strategies which were redundant on the need of practical knowledge, obtainable goals and policy changes of their environment in order for them to keep their disease management. Further research at a population level may aid to generalize this finding and to provide a better understanding of patients' compliance to non-pharmacological treatment.

Chapter 1: Introduction to the Study

Overview of Hypertension

Chronic diseases are major contributors to global mortality (Adeyi, Smith, & Robles, 2007; World Health Organization, 2009). Among chronic diseases, cardiovascular diseases (including coronary heart disease, stroke, and rheumatic heart disease) have been increasing since the 1990s and were responsible for 80 percent of deaths in low and middle income countries (World Health Organization, 2009). According to the Seventh Report of the Joint National Committee on the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) the relationship between high blood pressure and risk of cardiovascular disease is independent of other risk factors (Chobanian, et al., 2003). Hypertension accounts for thirteen percent of global mortality; it can contribute to an increased risk of chronic diseases along with factors such as overweight, physical inactivity, tobacco use and high blood glucose levels (World Health Organization, 2009). Complications such as kidney disease, infarction and heart failure can be reduced by the proper management of hypertension (Pereira, Lunet, Azevedo, & Barrios, 2009). Hypertension affects all countries independent of their income (World Health Organization, 2009). About 40% of all adults in developed countries are affected by hypertension even though the worldwide trend has been decreasing over the last 30 years (Danei, et al., 2011), whether for improvements in medical diagnosis, aging population, or public health interventions (Organización Panamericana de la Salud, 2011). The case is different for developing countries where hypertension is actually increasing (Kearny, et al., 2005). More

specifically, the prevalence of hypertension in Latin American countries ranges from 14% to 44% (Hernandez, et al., 2010).

Statement of the Problem

In the Republic of Panama, two major public institutions give medical care: the Ministry of Health (MINSAL), which determines all population policies regarding health, and the Social Security System (CSS), which provides health care for employers and employees of both private and public institutions. For areas where care is inaccessible, NGOs work with the Panama Ministry of Health to provide care. Private care is also available across the country. By 2009, there were 3,070,907 insured people and 481,535 not insured by the Social Security System (Organización Panamericana de la Salud, Ministerio de Salud de República de Panamá, 2009; Caja de Seguro Social, 2011).

According to the Ministry of Health in Panama, one in every 100,000 Panamanians has been diagnosed as hypertensive; 52.8% of the population has had an ischemic disease, and death by ischemic disease climbed from third to second place as a leading cause of death from 2009 to 2010 (Ministerio de Salud República de Panamá, 2010). Hypertension is important not only because of its high prevalence, but also because it is a major modifiable risk factor for cardiovascular and kidney diseases (World Health Organization, 2011). In Latin America, about 6.5% of GDP is used to provide health care (Organización Panamericana de la Salud, 2011). Chronic kidney disease happens to be one of the most costly complications of uncontrolled hypertension (Organización Panamericana de la Salud, 2007). In Panama, there are approximately a thousand patients with chronic kidney disease, 80% of whom have either diabetes or hypertension (Cortes, 2009). The Director of Medical Services of the CSS, Javier Diaz, stated that hemodialysis treatments which require at least three sessions per week add up to twenty six thousand dollars a year per patient (Prieto-Barreiro, 2012). Just last

year, hemodialysis patients demanded the opening of more hemodialysis centers to provide for them, which could be happening as a result of poor hypertension control (Fajardo, 2011). In a recent study which investigated the prevalence of risk factors for the development of cardiovascular diseases in the adult population of 18 and more in the cities of Panama and Colon in the Republic of Panama, the prevalence of hypertension was estimated at 38.5% and at 49.4% for uncontrolled hypertension (Mc Donald, et al., 2010).

Uncontrolled hypertension has been linked to the prescription of inadequate medication, factors relating to physicians' knowledge and perception of control guidelines, and patients' self-management behaviors as well as knowledge and perception of the disease (Bokhour, et al., 2012; Mansyur, Pavlik, Hyman, Taylor, & Goodrick, 2013; Taylor, et al., 2012). Interventions intended to improve patient's risk factors for chronic diseases such as uncontrolled hypertension have produced contradictory evidence on the long term (Aldana, Greenlaw, Diehl, Englert, & Jackson, 2002).

Not much is known in the Republic of Panama about the limitations to patients' compliance with guidelines for lifestyle modifications and even less is known about sodium intake behaviors. Although literature on understanding patients' perspectives on disease and on quality of life for diseases like cancer is available, not so much is available on hypertension.

The purpose of this study is to investigate whether hypertension could be managed effectively once diagnosed, considering the patients' perspectives as they manage their hypertension on daily basis.

Justification

Guidelines like the JNC 7, which are a derivative from previous guidelines, have been created for the purpose of having a clear, concise, evidence-based guide for

clinicians to classify blood pressure in a simpler manner. They are also a guide for the diagnosis and management of patients with high blood pressure and other comorbidities. The scope of the guidelines accounts for pharmacological treatment and lifestyle modifications in almost all patients. As explained in the JNC 7 guidelines, adoption of a healthy lifestyle is not only of benefit for hypertensive patients but also for the prevention of hypertension development (Chobanian, et al., 2003).

The Panamanian guidelines for the comprehensive care of patients with hypertension were created with the collaboration of the Panamanian Ministry of Health, the Social Security Fund and the Pan-American Health Organization. The guidelines are the result of a systematic review of the topic and the consideration of the guidelines of the International Society of Hypertension, the European Society of Hypertension, the JNC 7 and the World Health Organization (Organización Panamericana de la Salud, Ministerio de Salud de República de Panamá, 2009).

Up to 75% of ischemic heart disease and cerebrovascular accidents could be prevented if the available scientific knowledge on the prevention and control of risk factors would be applied. Thinking and actions at the individual and societal levels with the tools of scientific information are still needed to mold policy and to shape strategic processes to introduce the needed change to fight non-communicable diseases (World Health Organization, FAO, 2003).

Many strategies have been implemented by the Ministry of Health and the Social Security System to control chronic diseases like hypertension. The Ministry of Health has future aims to develop strong publicized campaigns promoting healthier lifestyles (Ministerio de Salud República de Panamá & Organización Panamericana de la Salud, 2012). What remains to be answered is why after all the approaches taken by the Ministry of Health and the Social Security System, the prevalence rates of hypertension continue to rise and progress into other complications. During a United Nations

Conference, the Republic of Panama acknowledged the importance of adequate food labeling and the promotion of moderate salt consumption (Ministerio de Salud República de Panamá & Organización Panamericana de la Salud, 2012). According to the Pan American Health Organization, salt intake reduction is one of the most cost-effective measures to improve health, and decrease the incidence and mortality of diseases related to its high intake. Countries which have followed this measure have seen a decrease in systolic pressure (Organización Panamericana de la Salud, 2012).

During the last ten years, the numbers of working women have increased in Latin America (World Bank, 2012a). According to Browner (1989) the implications of health for woman who work and are also running households is still unknown. Globally, chronic diseases have become the silent killer of women, representing 65% of all deaths in women. In 2008, cardiovascular diseases were responsible for the deaths of about 1.2 million women. There is a misconception that cardiovascular diseases occur only in men. This gap in knowledge is also visible in the misdiagnosis of cardiovascular disease among women, as the warning signs in men are not the same as in women (NCD Alliance, 2011). Women have a higher rate of complications and death after an acute myocardial infarction, and have a lower probability to be diagnosed on time (Organización Panamericana de la Salud, 2011). Most of these deaths occur before the age of 60 years, when women are at the age of greatest productivity and when their economic and social impact is more substantial. Disability among those who survive acute myocardial infarction creates a burden that is carried by families and the health system (Organización Panamericana de la Salud, 2011; NCD Alliance, 2011).

Worksites provide a good opportunity for collecting information to develop a needed insight (Aldana, Greenlaw, Diehl, Englert, & Jackson, 2002; Pegus, Bazarre, Brown, & Menzin, 2002; Bloch, et al., 2006). Such insight is helpful for both for the patient/employee and employer, since the financial impact of chronic diseases falls on

both parties as direct medical costs, absenteeism, disability, and sick leave. (Chapman, 2004). Worksites are an appropriate place to make interventions for chronic diseases (Aldana, 2001). Allen, Lewis, and Tagliaferro (2012) found that providing interventions to reduce risk factors for cardiovascular disease and metabolic syndrome in a small workplace environment was cost-effective in an experimental group when compared to a control group.

For the purposes of this study the worksite chosen was the National Bank of Panama. This organization is a historical bank that functions as a state bank, regulating banking and private banks. It has 67 branches nationwide with 30 of them located in the capital city of Panama (Banco Nacional de Panamá, 2011). Through the Human Resource Department and the Section of Social Work, there is a continuing effort to develop a healthy workforce. Every year the organization brings together health fairs at the different branches nationwide, inviting different businesses to offer their pharmaceutical, food, treatment and orientation areas of expertise. Last year one of the programs included techniques for the management of stress. Currently there is a nutritional program being offered to the personnel considered to be overweight. Activities and opportunities to learn are also available in the areas of nutrition for hypertensive and diabetic patients. Along with all these activities, every branch has its own health clinic supervised by a physician who is available for the workers needs which may include consultations for disease, refill of medication and control of illnesses (N. Montero, personal communication, June 6, 2013).

Chapter 2: Literature Review

Overview of Background

“Health promotion is broadly defined as the process of enabling people to increase control over, and to improve, their health” (National Cancer Institute, 2005, p. viii). Understanding the patients’ limitations to improving lifestyle factors, as for example the ones described by the JNC7 (Chobanian, et al., 2003), are among the most important and least costly measures to lower high blood pressure. These measures include: weight reduction; adopting a dietary approach to stop hypertension (DASH), dietary sodium reduction, physical activity, and moderation of alcohol consumption (Chobanian, et al., 2003). Current Panamanian guidelines for the management of hypertension suggest increasing physical activity, reducing stress, weight and cholesterol maintenance, avoiding alcohol and tobacco consumption, and finally reducing sodium intake below 4g daily. Among the nutritional recommendations given to patients to reduce sodium intake are: to use little table salt for cooking, to reduce consumption of high sodium foods like sausage, jerky, chips, packaged soup and canned food, and to replace high sodium condiments with herbs and spices (Organización Panamericana de la Salud, Ministerio de Salud de República de Panamá, 2009).

Self-management is also of concern in this research. Understanding limitations, acknowledging the disease, taking control of the disease, and taking part in the decision-making on health with the help of physicians are factors that affect hypertension prognosis. For instance, programs like Stanford’s Chronic Disease Self-Management

Program (CDSMP), created in 1999, have been developed to empower people with various chronic diseases through improvement of their self-efficacy. The goal is to make the patient responsible for solving problems, making decisions, and building self-confidence (Lorig, et al., 1999). The CDSMP team also applied the program to a cohort of 613 chronic patients using peer instructors who implemented the program in a period of seven weeks with small groups. Patients who enrolled had statistically significant improvements in health behaviors which included: communication with physicians, exercise and management of symptoms, self-efficacy, and reduced visits to the emergency room (Lorig, Sobel, Ritter, Laurent, & Hobbs, 2001). This same program has been applied to a variety of populations like Hawaii's multicultural population with the same expected positive results (Tomioka, Braun, Compton, & Tanoue, 2012; Chan & Chang, 2011). Although it hasn't always been the case, failure of the program is possible. For example, in the Netherlands no positive effects were found in elders (Elzen, Slaets, Snijders, & Steverink, 2007). This last study highlights how important it is to follow the instructions in an approved protocol, and also the importance of taking into account cultural differences. Chronic diseases in work places may result in unnecessary absence, sickness leave and the early retirement of productive workforce. Interventions focusing on the empowerment of patients enable them to become knowledgeable of the disease and to take responsibility for their own health care with the help of health care professionals. In order to assess self-efficacy it is important to promote knowledge, behaviors and skills (Varekamp, et al., 2009). Self-management can improve uncontrolled hypertension, considering that almost half of the participants do not comply with pharmacological treatment and recommendations for lifestyle behavioral changes, and that non-compliance may even be a greater problem (Vrijens, Vincze, Kristanto, Urquhart, & Burnier, 2008). Finally, considering the hereditary factor of hypertension, the

observed lack of disease self-management could imply that future generations will carry larger burden of disease as well.

Perception of Hypertension

According to Panamanian guidelines (2009), hypertension is defined as the elevation of blood pressure, taken within no less than 10 minutes of rest in which systolic and/or diastolic pressure are above normal ranges. The JNC VII distinguishes four types of blood pressure: normal, pre hypertension, hypertension stage one and hypertension stage two. Measurement guidelines consider comorbidities, risk factors and, stages of hypertension to indicate suitable therapy for the patient. Etiological causes for hypertension are multifactorial, which means it can be caused by many factors as family history or it can be secondary to other diseases. Hence, everyone who consults a healthcare facility should have their blood pressure taken (Organización Panamericana de la Salud, Ministerio de Salud de República de Panamá, 2009). Consistent with this statement, McDonald and colleagues (2012) found very similar approaches in their cross sectional study; more than half of the interviewees had their blood pressure taken in the last 12 months by a health care professional. The prevalence for hypertension in this last study was of 38.5% which corresponds to the prevalence rates in developing countries (Hernandez, et al., 2010).

In a study which used patients' explanatory models to account for their course of illness and causes of disease, it was found that most participants had an accurate knowledge on the implications of hypertension for their health and knowledge on lifestyle recommendations but would still fell into non-compliance with treatment (Taylor, et al., 2012). According to this last study, participants expressed that thinking too much, environmental factors as socioeconomic status and behavioral factors such as lifestyles accounted for their disease. Controversy over the course of illness was explained by the fact that it was unclear whether or not hypertension could be cured.

Patients perception of the disease can influence how they manage their disease. For instance patients with other diseases like diabetes may consider hypertension as a second place in their disease management agenda, giving priority to diseases which are more symptomatic (Heymann, Liora, Zucker, Chodik, & Shalev, 2012).

Lifestyle Modifications

Independently of type of hypertension, all patients need to be educated on lifestyle modifications in such areas as physical activity, stress reduction, avoidance of tobacco use, alcohol intake moderation, weight control, sodium intake reduction, maintaining cholesterol and triglycerides in normal ranges and rest. In the Panamanian guidelines weight control and sodium intake reduction are the most specific recommendations. Weight control guidelines recommend including fruit in all meals, avoiding sugar drinks, drinking at least eight glasses of water a day, to avoid the intake of simple sugars like chocolates, candies and others, eating salads both at lunch and dinner time, small portions of meals, regular schedules for eating, no fried food, choosing grilled over fried meals and using low fat products (Organización Panamericana de la Salud, Ministerio de Salud de República de Panamá, 2009). The JNC VII recommends healthy lifestyles as a first line of therapy (Chobanian, et al., 2003). Barriers to follow these guidelines can be attributed to the lack of knowledge and lack of assessment of patients' individual barriers as well as an assessment of their environment (Milder, Blokstra, de Groot, van Dulmen, & Bemelmans, 2008).

Although not contemplated in the JNC VII (Chobanian, et al., 2003) or in the European guidelines for hypertension (Mancia, et al., 2007), stress management has been considered to be a coadjuvant therapy with pharmacological treatment and other lifestyle modifications in the management of hypertension (Greenwood, Muir, Packham, & Madeley, 1996; Spence, Barnett, Linden, Ramsden, & Taenzer, 1999). Possible biological plausibility may reside in the effect of cortisol on hypertension (Hamer &

Steptoe, 2012). A sub study from the Stockholm female coronary risk study was carried out to assess the effect of stress in coronary arterial diameter. After controlling for other factors the researchers found that stress was independently related to smaller diameter when evaluated by angiography which could mean that stress could accelerate coronary disease process in women (Wang, et al., 2007). Taylor et al (2012) found there were slight differences across gender groups in the perception of stress and symptoms, with women's explanatory model placing more emphasis on family and men's model emphasizing work stressors. Stress is commonly referred as a cause of hypertension. Hence, stress management is seen as an effective way to control hypertension (Heymann, Liora, Zucker, Chodik, & Shalev, 2012).

Weight management has been described as a protective factor against both the development and progression of hypertension (Chobanian, et al., 2003; Mancia, et al., 2007; Mancia, et al., 2007; Organización Panamericana de la Salud, Ministerio de Salud de República de Panamá, 2009). Urbanization and work patterns affect dietary patterns and the lifestyle of individuals. Among urbanites, very often nutrition shifts towards a higher-energy dense diet which includes mostly saturated fat and added sugars, with a corresponding reduced intake of complex carbohydrates and dietary fiber found in fruits and vegetables (World Health Organization, FAO, 2003). McDonald and colleagues (2012) documented the presence of protective factors against cardiovascular health like eating fruit and vegetables in only 5.5% of the hypertensive population of study. On the other hand participants of this study reported the intake of fatty food at least twice a day.

Pridgeon and Whitehead (2012) established that reasons for healthy eating in workplaces are a mix among time, cost and availability of food offered, personal choices, marketing, and the information provided by the food labels. Other reasons found in hypertensive homeless patients apart from accessibility and cost were the lack of knowledge of recommendations and the perceived restrictiveness of the

recommendations given by their physicians (Moczygamba, Kennedy, Marks, Goode, & Matzke, 2012). When referring to other healthy lifestyle changes, patients explained exercise limitations as not having time or an affordable place, or even knowledge of the specificities on how to exercise and for how long (Moczygamba, Kennedy, Marks, Goode, & Matzke, 2012).

The Time Survey was done nationwide for the first time in the Republic of Panama in October 2011. This survey provides information about the use of time by individuals when distributed in activities like paid work and unpaid work. It is also measures how men and women distributed their time. It evaluates the differences in the quality of life and opportunities inside their homes and in society. Personal needs activities used up 40.4% of weekly hours, followed by paid work at 15.6%, family at 11.3% and free time at 11.2% for a sum of 78.5% of all the time used by the population of 15 years and older. When analyzed by gender the distribution was more or less the same. Nevertheless, when comparing the global burden of both paid and unpaid work, there is a difference of 9:05 hours more on women (Instituto Nacional de Estadística y Censo, 2013).

Sodium Intake

In the Institute of Medicine (2010) report for strategies to reduce sodium intake in the United States, salt is explained to have been used through the years as the means of both preserving food and enhancing flavor for more than 4000 years (Adshead, 1991).

The Institute of Medicine's report was a response to the request of the United States Congress to provide recommendations for salt intake management. The World Health Organization recommends a reduction in sodium intake of less than 2grams per day to reduce hypertension and the risk of developing a cardiovascular disease independently of age (World Health Organization, 2012), refer to table 1 for sodium recommendations according to organization and food examples. Americans have an

average daily intake of more than 3,400 mg of sodium which exceeds daily sodium recommendation by the WHO (2012) (Institute of Medicine of the National Academies, 2010).

Table 1

Comparison of daily recommended limits for sodium intake in healthy adults

| Organization | Recommended limit | | Food example that could account for the entire daily limit |
|---------------------------|-------------------|-------|--|
| World Health Organization | 2.0g/Day | | 1 large taco + 1 cup of refried beans |
| Institute of Medicine | 1.5g/day | lower | 6-8 fast food batter fried shrimp |
| | 2.3g/day | upper | One 6" tuna salad sub sandwich + 1 cup of noodle soup |

Source: Wright & Cavanaugh (2010)

Panama is in the process of regulating food labeling in products, as at the moment products are not required to carry information detailing their nutritional content. The most commonly known source of sodium is salt or table salt. One teaspoon of salt is equivalent to 2300 mg of sodium. Other non-natural combinations of sodium which are available in the market are monosodic glutamate, sodium nitrite, sodium benzoate and sodium bicarbonate (Solis & Tejeira, 2011). In a study done in the Panamanian population, McDonald et al (2012) found that only 12% of hypertensive patients would add additional table salt to their food when served. At the moment there is no knowledge on the average of sodium consumption in the Panamanian population. Barriers to follow the management of sodium intake have been described as cost and healthy food availability to fulfill the needed requirement of sodium for hypertensive patients (Chobanian, et al., 2003).

Theoretical Framework

The ecological perspective. This approach emphasizes the relationship among all factors which represent a health problem: the community, institutions, policies, individual or population's characteristics and the environment. Concepts in this perspective include the reciprocal causation and the multiple levels of influences in which behavior affects its environment and vice versa. Levels of influence include the intrapersonal, interpersonal and community levels (National Cancer Institute, 2005). Theories which address the intrapersonal level of the ecological perspective explore knowledge, attitudes, beliefs, past experiences, motivations, self-concept and skills. In this perspective, an individual is considered the core for any health promotion activity.

The health belief model. Developed during the 1950s, it has been widely used as a predictor of behavior by analyzing what makes a person comply or not to a certain action. This model focuses on an individual's perception of susceptibility to develop a health problem, the possible severity once the condition has taken place, the benefits of avoiding this threat and factors which influence the individual's decision to take action towards the health problem. A total of six constructs provide for the framework: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy (National Cancer Institute, 2005). These constructs have been found to play an important part among the factors that affect patients' compliance with treatment recommendations (Beckers & Maiman, 1975).

The transtheoretical model. As another individual focused theory, this approach revolves around behavior as a process and not a single event in which an individual may move around five stages, whether back or forward. These stages are precontemplation, contemplation, preparation, action and maintenance. The individual who moves around these stages will have different needs and will ultimately perceive his/her experience differently according to the situation in which he/she is in. Stages for

this model are defined according to the intention of taking action and the lasting effect once the action has taken place (National Cancer Institute, 2005).

Grounded theory. Unlike other approaches, grounded theory does not start with a preconceived theoretical assumption. It provides preference to the data and the field study in order to describe and explain the phenomenon (Flick, 1998). Independent of the source of information, the participant's voice becomes the path by which the investigator gives meaning to the phenomenon and adds context to the interpretation of results. This process requires the investigator to be constantly reflecting over his footsteps until the interpretation becomes accurate to the reality of the problem studied. Using theoretical coding, emergent themes give an answer to the research question. This approach was chosen as a method to explore the process in which patients with hypertension manage their disease while considering their everyday activities and roles.

Chapter 3: Research Methodology

Overview of the Methodology

This study explores woman's perceptions of living with hypertension and their experiences as they cope with following hypertensive guidelines on lifestyle modifications while dealing with their daily roles. Given that the topic of this thesis has not been studied in Panama, an exploratory approach has been chosen. Although the development of the interview guide considered the intrapersonal level of participants, it was flexible enough to give space for other factors to arise as the data was collected. In order to collect information for this study, a series of in depth interviews were executed and audiotaped. Analysis and interpretation of the findings were accomplished by relying on grounded theory. Study started after permission from the National Bank of Panama and approval from both the Institutional Review Board (IRB) at the University of South Florida and the Punta Pacifica Hospital Institutional Committee of Ethics in Panama.

Research Questions

1. What is the patient's perception of being hypertensive?
2. What do patients know about the hypertensive guidelines on weight control, stress management, sodium reduction, alcohol moderation, tobacco avoidance, triglycerides and cholesterol level maintenance and physical activity?
3. What are the perceived barriers to follow lifestyle modifications?
4. What are patients' specific perceptions and knowledge regarding sodium intake?
5. What are the perceived barrier(s) to follow sodium intake recommendations?

Research Design

The research described in this document uses qualitative methods in order to answer the research questions. Qualitative research enables the researcher to not only understand the participants' perspectives but to also add his/her reflections to discover and propose a theory which can explain the phenomenon (Flick, 1998). Individual in-depth interviews with participants using a semi-structured interview guide, containing both closed-ended and open-ended questions were chosen for data collection as well as further inquiries which allowed for the assessment of factors (variables) that impact patients' understanding, and compliance with hypertensive guidelines on sodium intake and other lifestyle modifications.

Population

The current Panamanian population is estimated at 3,405,813, with 50% of the population living in the capital of the country (Instituto Nacional de Estadística y Censo, 2010). In Panama, most workplaces have an occupational health program within the institutions, regardless of whether the organization is public or private. In Panama, the percentage of woman currently working is 25 percent more than in 2000 (World Bank, 2012b). According to the National Census Agency of Panama, there are a total of 446,000 women in the district of Panama of which 140,226 were working by 2010 (Instituto Nacional de Estadística y Censo, 2010).

Sample and Setting

The setting for this study was the National Bank of Panama which according to N. Montero, chief of department of social work at the National Bank of Panama, has approximately 1600 women with a variety of job descriptions out of a total of 2975 employees. The majority are located in two branches: the Main Branch (Casa Matriz) and the Transistmica Branch (N. Montero, personal communication, May 16, 2013).

The study sample was obtained through purposive sampling of women working from two of the Bank's major branches, Casa Matriz and the Transistmica branch. Purposive sampling is useful to gain a deep understanding of a population with specific characteristics in concordance with the research question (Kendal, 2010). Seventeen (17) hypertensive women in their middle adulthood were interviewed by the study principal investigator.

Eligibility Criteria

Inclusion criteria. Women willing to participate in the study, who work at an organization with a health occupational program, between the ages of 30 to 59, and a twelve-month diagnosis of hypertension with at least one prescribed drug met the study inclusion criteria.

Exclusion criteria. Women enrolled in a similar research program within a year of this study or who do not meet the inclusion criteria.

Recruitment Strategy

Given that the study site was a work setting, logistics pertaining to recruitment strategy and interview procedure were handled by the Human Resource Department section of Social Work before actual recruitment started. It was decided by both parties that the principal investigator (PI) would work with the chief of Social Work and the physician of the health clinic located at the main branch of the organization. The Social Work section from the Human Resource Department provides all the employee benefits and organizes other activities connected to these benefits. The physician from the health clinic located at the main branch offered her services to be part of the recruitment and to serve as a link with the clinic at the Transistmica branch. With help from the section of Social Work, an email was sent to all employees of the organization nationwide. The electronic invitation (Appendix A) was directed to female collaborators working in two branches of the National Bank of Panama, the Casa Matriz branch (main branch) and

the Transistmica branch, both located in the city of Panama. The invitation contained information on the study's purposes and provided the contact information for the principal investigator (cellphone, email) and the physician at the main branch clinic who collaborated in the recruitment of participants. The potential participants could contact the PI by replying to the emails provided, using the contact information of the PI or by providing their contact information to the clinic physician aiding in the recruitment. The email was sent in two rounds with one week between. A total of 22 potential participants replied to the invitation. The investigator contacted them by any of the proposed means in order to explain once again the purposes of the study, eligibility criteria and to answer any questions in relation to the research. After willingness to participate was determined as well as status based on eligibility criteria, a total of 17 participants were included in the study. From the participants who entered the study, 5 were chosen (3 from the main branch and 2 from alternative branch of the organization) for pilot testing the study survey instrument and 12 participants were recruited to complete the interview.

Informed Consent

Once potential participants met the inclusion criteria, the principal investigator (PI) arranged a date to have each of them read the study Informed Consent form. During this process, the PI asked the potential participant if she understood that the study was voluntary, confidential and that not agreeing to participate would not affect her relationship with her employer, also that she could refuse to participate at any moment without any repercussions on her behalf. By the end of this process, the participant was given the opportunity to sign the Informed Consent form. Subsequently, the PI scheduled an appointment with the participant who had signed the Informed Consent to complete the interview.

Incentives / Time Reimbursement

Food was originally offered to the participants for their time and collaboration in the Informed Consent document. Nevertheless once the study started, it became clear that lunch hours at noon would not be convenient for interviews. For this reason, interviews were offered after the health clinic was closed in order to ensure the required time and confidentiality. Before offering the potential participant the opportunity to be included in the study, it was explained that food was not going to be offered but rather a gesture of gratitude. Key chains for a value of \$8 were given to the participants who chose to be included in the study. This amount is not excessive and as such did not influence the women's choice to participate in the study.

Instrument

The interview questionnaire is a derivative from a questionnaire (Appendix B) to assess chronic disease (heart disease, hypertension, diabetes) and minor depression in a Latino population (Corvin, et al., 2010). Verbal permission was obtained from Dr. Jaime Corvin who designed the original instrument to reformulate questions to answer the research questions. During the process of data collection, the original instrument was adapted to introduce probes that would allow reaching consistency of answers and to better explain the findings. The interview instrument was pilot tested in a group of five women with the same characteristics as the sample used for data collection. The purpose of pilot testing was to test for the accuracy and understanding of questions asked to participants.

To understand the participants' perspectives on hypertension, open ended questions were developed to elicit what living with hypertension meant for them and how this perspective had changed over time given the case.

Data Collection

Data collection was conducted over a period of six weeks. Data was mainly obtained through interviews and note taking. Each of the individual semi-structured interviews was audiotaped for analysis purposes with participants' permission and held behind closed door in the doctor's office at the health clinic situated at each branch of the organization. Interviews were done only by the principal investigator, who did not have any affiliation with the work organizations of the chosen participants. Only one interview was required from each participant and it lasted from a period of 20 to 60 minutes. Additional questions or activities were not required from participants after the interview was completed. The interviews focused on their perceptions, perceived risks, current knowledge of healthy lifestyles and suggestions for future interventions regarding the research topic. In order to acquire a broad view of the problem, principal stakeholders were interviewed. These included the physician from the health clinic of the main branch of the Bank who was interviewed for her views on the research subject matter, as well as the chief of Social Work who directs all of the activities and benefits concerning the Bank's employees. Based on this study, a summary and set of recommendations will be given to the National Bank of Panama in order to be used, if accepted, to shape activities promoting health, specifically hypertension management.

The names and information from the chosen participants were kept confidential from the employer and personnel who aided in the logistics of the study. A number was assigned instead of the participant's real name during the interviews and transcription, thus guaranteeing confidentiality even among the research assistants. Any hard copy documentation was labeled by the participants' number. Data collected will be saved in a locked file cabinet at the USF Health office in the City of Knowledge in Panama City. Informed consent forms and number assignments will be kept in a different locked file cabinet at the USF Health office in the City of Knowledge. Electronic documents are

saved under a password-protected archive to maintain confidentiality in the investigator's computer files during the process of the study. After the study is closed with USF IRB, electronic materials will be saved in a flash drive and stored with any other hard copy of transcripts in a locked cabinet at USF Health office in Panama City. After a period of five years, a company will be hired to dispose of all study materials. The destruction of all the documentation will be witnessed by the investigator and a certificate will be provided by the company to ensure that this activity was carried out and to keep as a record.

Analysis

The interviews with participants were audiotaped and conducted using a semi-structured questionnaire. Each session was listened to and transcribed verbatim by the investigator and her research assistant into a Word document which was labeled after a code in order to avoid using names. Transcripts were loaded into MAXQDA (Kurckartz, 2012), a software program for electronically organizing and analyzing text. Interview analysis occurred concurrently with data collection (Krueger & Casey, 2000). Both the investigator and assistant analyzed the transcripts using the constant comparative method (Glaser, 1978). This method requires the research team to analyze from the beginning of data collection and to look for similarities and differences throughout all the phases of coding until the generation of themes which can allow the process of theory making. As interviews were completed, the investigator and the assistant read the transcripts to identify coding categories based on emergence of frequent answers. An a priori code book was made initially but the coding process included: open coding, axial coding and selective coding as grounded coding requires (Flick, 1998). Open coding uses words, phrases, statements and memo writing to develop concepts which need to be constantly compared until saturation is accomplish. As insight is created, new categories emerge and axial coding is continued within a category. Coding and comparison are pursued until core categories are identified and so the process of

selective coding continues to allow for theory construction. Constructed theories will explain the relationship among the categories which are a representation of the data (Corbin & Strauss, 2008).

The investigator considered the initial research questions, but also took into account other issues that were not contemplated initially by the study. Codes were entered into MAXQDA so that transcripts could be sorted by category. Passages sorted by category were read by the investigator and assistant who identified recurring themes and the range of diversity in responses, making summaries and interpretive statements, and marked passages worthy of quotation. The investigator and research assistant compared notes on each topic for consistency and agreed on statements to be included in the research findings section of the research report. The results of this study will be presented in a thesis directed by a committee of professors from USF. An additional summarized report will be given to the National Bank of Panama to use, if wanted, to improve their Occupational Health program according to the given recommendations. Subject identifiers will not be included in any of the reports or journal publication, if the study is published.

Quality of Results

Adherence to the research methods proposed was an important factor during the process of data collection and analysis. A constant comparison of results by the research team as well as meeting throughout the process was necessary to ensure the quality of results.

During the interviews, the researcher would constantly summarize the given points of view both from the participant and the researcher in order to assure that the voice of the participant was being heard. Probes were used whenever possible to gain insight into the responses given by the participants (Patton, 2002).

During analysis, data was analyzed without any further use of literature review in order to keep the process of coding intact and independent of preconceived notions. After every each step of the analysis is completed, the investigator and research assistant compared results for inter-rater consistency and made appropriate adjustments in the codebook for the meanings found in the transcripts and re-coded each transcript to assure reliability. Every transcript was discussed in team meetings to insure the quality of the process of conceptualization, categorization and recognition of themes. An external researcher would also review the analysis of the transcripts to confirm the process and give feedback. Consensus on themes and quotes was required to provide for the final results on this study.

Once themes and hypothesis were assessed by the research team, this information was taken back to a participant in order to confirm the interpretation of results. The research team is made up of physicians knowledgeable of the research topic, so their experiences were also considered in the final interpretations of the results.

Chapter 4: Results

Overview of Results

The following chapter describes the findings of the study related to the research questions. A constant comparison method was used to identify the common characteristics and differences across the participants, categories which emerged to give a perspective of patients' perceptions, knowledge, and behaviors towards hypertensive guidelines and hypertension.

Participants' Profile Overview

A description of interviewed participants has been detailed in order to gain a general perspective of the individuals as a whole. Closed-ended questions like time of diagnosis of hypertension, comorbidities, limitations and benefits to follow hypertensive guidelines were used to complement other questions when applied. Questions about job description, family history of hypertension and whether or not having a nuclear family were omitted to avoid leading participants into thinking about limitations or motivations to follow hypertensive guidelines. This information was provided by participants' choice and not by investigator's inquiry. A summary of participants profile can be found in table 2.

Participant 0102. As a mother and hypertensive patient with three years of clinical diagnosis, participant 0102 has managed her disease with the use of pharmacological treatment and lifestyle modifications which included stress management and weight control among others. Among her other diseases she also has occasional migraines and a visual defect that was not specified during the interview. She has a family history of death by heart attack. Her main motivation to follow guidelines is

a better quality of life, and the most important barrier to follow guidelines is the economical factor. She perceives lifestyle modifications as a benefit to maintain her blood pressure in normal ranges. She never commented on problems to control her blood pressure.

Participant 0103. This participant is a mother and wife. She has been a hypertensive patient for a period of three years. She manages hypertension with medication, stress management and is in a continuing effort for weight control (currently with the help of a nutritionist). She does not communicate having any family history of hypertension and she denies having any other diseases apart from hypertension. She is mainly motivated to manage her hypertension by the thought of possible complications. Her described limitation is time. The benefits she sees in following lifestyle modifications in particular exercise are feeling good and having a better quality of life.

Participant 0104. As one of the youngest participants, subject 0104 is single. Her diagnosis of hypertension was done three years ago. Although she reported initial problems with compliance to medication she now identifies herself as having disease awareness. She manages hypertension by taking her medication, lifestyle modifications like healthy eating (weight control and sodium intake control), exercise and stress management, in no particular order. Her mother had a cardiac complication. Other diseases she reported are of ophthalmic origin and only require her to use glasses. Her main motivation was her mother's complications. Her most important limitation is access to healthy food and time. Her perceived benefits to following lifestyle recommendations are to avoid symptoms, in her case headaches. She was one of the two participants who knew the recommended value of sodium intake for a hypertensive patient.

Participant 0106. This participant is single and was clinically diagnosed with hypertension four years ago. She manages her hypertension with the use of pharmacological treatment. Her most described lifestyle modifications are exercise and

weight control. Her mother was operated on because of an aneurism a few years ago. She has had chronic gastritis for over 30 years and it is a great cause to control her eating habits since spicy food produced her symptoms. Her motivation to follow hypertension guidelines is avoiding complications and living longer. She perceived the economical factor to be a limitation when it comes to buying her medication and quality of life as a benefit to taking care of herself.

Participant 0107. As both a mother and a wife, patient 0107 was diagnosed with hypertension about seven years ago. She manages her blood pressure by taking medication and by practicing lifestyle modifications like stress management and weight control. She has a mother with hypertension but her diagnosis was recent. Other diseases she reported are migraines which are not that frequent and lumbar pain, which she considers to be her main disease because of the pain it causes. Her main motivation to follow hypertensive management guidelines is the fact that she wants to accomplish more goals in her life. She considers stress as her most important barrier to manage her blood pressure. Her perceived benefit to follow lifestyle modification is better quality of life.

Participant 0108. This patient is a mother and wife who has lived with hypertension for the last three years. She is very strict in taking her medication and eating healthy. Her husband and father were also hypertensive patients. She also has gastritis as a consequence of oncological treatment received a few years ago. This is a relevant factor to controlling her salt intake. She is motivated by the desire for a good quality of life, does not identify a personal limitation to following guidelines and considers guidelines to be beneficial to improving the way she feels.

Participant 0109. This subject has lived with hypertension for a period five years. She is a mother and she manages hypertension by weight control measures and taking her medication. Her history of disease includes asthma since she was two but

during the interview she did not talk about asthma. Her main motivation to manage hypertension is her daughter and avoiding having symptoms of hypertension. Her barrier to manage hypertension was lacking strength of will.

Participant 0110. This participant is also a mother and a wife. She was recently diagnosed with hypertension. She tries to follow hypertensive guidelines by taking her medication during the week and by practicing stress management techniques as well as healthy eating with the monitoring of a nutritionist. Her mother is also a hypertensive patient. She has had other limiting diseases like lumbar pain. Her motivation to follow guidelines is her family and her most limiting factors were her other diseases, which also limited recommendations like doing exercise. The benefit she sees in following lifestyle recommendations is a better quality of life.

Table 2

Participants' profile

| Participant | Years of diagnose ^a | Family history ^b | Nuclear Family ^c |
|-------------|--------------------------------|-----------------------------|-----------------------------|
| 0102 | 3 | Father | Yes |
| 0103 | 3 | Not mentioned | Yes |
| 0104 | 3 | Mother | No |
| 0106 | 4 | No | No |
| 0107 | 6 | Mother | Yes |
| 0108 | 3 | Father | Yes |
| 0109 | 5 | Not mentioned | Yes |
| 0110 | 1 | Mother | Yes |
| 0111 | 2 | Mother | Yes |
| 0112 | 5 | Mother and sister | Yes |
| 0113 | 1 | Mother | Yes |
| 0114 | 3 | Not mentioned | Yes |

^a Years of diagnose: Refers to the years lived with hypertension since clinical diagnose.

^b Family history: Refers to hypertensive background in first degrees relatives.

^c Nuclear family: Refers to having a spouse and/or children.

Participant 0111. This subject is a mother with two years diagnosis of hypertension. She mainly manages her disease with medication and stress management. Her mother died of complications of hypertension. Some of her other family members have hypertension too. She doesn't have any other diseases for the moment. Her children are her biggest motivation to follow recommendations to manage hypertension. Her most described barrier is time. Benefits to follow recommendations were not described well by this respondent.

Participant 0112. As a mother and with five years of diagnosis with hypertension, participant 0112 handles her hypertension mainly by taking her medication. Other types of management of her hypertension she mentioned are not specific or followed thoroughly. She has two close family members with hypertension. There are no other diseases in her background. Following guidelines are motivated by symptoms and her biggest barrier is reduced sodium intake because of the alteration of taste. She thinks living healthy and without symptoms is the benefit to following lifestyle recommendations.

Participant 0113. This participant has had hypertension for the last four years. She is a mother and she manages her hypertension by taking her medication. She has difficulties trying to eat healthier, which she described as her biggest limitation to following hypertensive guidelines. She is motivated by her son and believes. To her the benefit for lifestyle recommendations is better quality of life. She does not have any other diseases or family member with hypertension.

Participant 0114. This patient was clinically diagnosed with hypertension three years ago. She is both a mother and a wife. Her mother has an antecedent of aneurism that may have been caused by hypertension. Since her diagnose she has been very cautious in taking her medication as well as paying attention to other recommendations like exercising and healthy eating. She doesn't refer to having any other diseases

currently. She is motivated to follow guidelines by the thought of being healthy, which is also her perceived benefit. The only limitation she considers to have in following guidelines is not understanding why although she follows the recommendations, she still has hypertension.

Perspectives of Being a Hypertensive Patient

In order to understand patients' perspectives on hypertension, a series of questions were asked so they could describe their actual thoughts about hypertension and how their perspective had changed during their initial diagnosis and at current time. It is important to remember that the study inclusion criteria required participants to have at least a year-long clinical diagnosis of hypertension in order for the participants to develop a point of view regarding hypertension management. The range of years from the moment they were first diagnosed and current time varied from one to nine years.

Emotional hypertension. Most of the respondents mentioned they understood that high blood pressure was a disease which had a normal range which was increased by secondary causes such as not exercising, not eating well, hereditary factors and stressors like emotions. At least half of the respondents referred to hypertension to be associated with emotions, stress or worries. In Panama it is very common to hear the term "emotional hypertension" and it refers to high blood pressure as a secondary factor to an emotional trigger which in some cases can be stress, concern or an emotion in general. For instance, when participant 0103 is about what hypertension means to her she answers "I imagine that is something circulatory. Like an effort, like a systemic alteration when you are worried...it's a disease that can be produced by stress or bad eating habits." In the same way participant 0111 refers to her disease in the following way, "My hypertension is emotional. I can have it high or low. I for instance try to control it, take my pills...I try to control my work and emotional side."

Time bomb. This category was taken verbatim from one of the participants' interview when she was trying to define her thoughts about hypertension. It describes the concern and in other cases, the fear of developing complications by hypertension which can range from stroke to death. All the participants were later asked about the complications they could develop if their hypertension was uncontrolled. Cardiovascular complications like infarcts were the most commonly mentioned, and less commonly were renal complications. At least the majority of the participants knew a complication or two that could be caused by hypertension.

Participant 0102 was the first to formally introduce the repercussions that hypertension could have in her life. The fact that her father had died of a heart attack could have been one of the motives. When asked about what she thought of hypertension when she was first diagnosed, she states:

I thought I had to take care of myself. Take my medication because it is a time bomb. [Interviewer: What effect has hypertension had in your current life?] I have to take things easy; I have to be more tolerant. I take my medication, that's the first thing I do in the morning. I can have a stroke, an infarct, thrombosis. Any of my organs can fail. My children are small...strokes don't have an age and neither do infarcts. (Participant 0102)

The same participant later was asked about a way to educate others about hypertension. According to her point of view there was a need to motivate people, to tell them what could happen when you had high blood pressure and what could happen to their organs. Another example of the perceived risk of hypertension and its complications is given by participant 0106. When she is asked what went through her mind when I said hypertension, she responded by saying "stroke." Her grandmother died of a heart attack and her mother had heart surgery two years ago.

I started paying attention to my pressure because I don't want to die...It is, if I don't take my medication on time I'm afraid something could happen to me when I'm on the streets on my own, I could faint, it could be a headache [Interviewer: What is

*your main motivation to following hypertensive guidelines?] I don't want to die. I think you have to take care of yourself if you want to live longer. I've seen a lot of people with complications.
(Participant 0106)*

It seems that understanding hypertension as a disease which can affect a woman at any moment in different ways is not only an important motivator to follow hypertensive guidelines but to develop disease awareness. The following participant was diagnosed three years ago and was initially prescribed with medications to control her hypertension. She was not compliant with her medication prescription until an incident which occurred to both her and her mother.

*When I think of high blood pressure I think about headache, infarcts, and stroke. Now days that I have disease awareness...My mother was sick and I had to find a doctor, he saw that I was so pushed that he took my blood pressure. I was like 180 over I don't know what, he told me I had to come too. He ended up treating me and my mother. It was in that moment that I became aware.
(Participant 0104)*

Lack of control. Some participants had a different perception about hypertension, specifically on what it meant to manage hypertension. It was noticeable through the course of some interviews, the role of control as both a perception and as factor that could affect the management of hypertension. It was common for some participants to mention the anxiety they experienced after knowing they needed to take medication or even to be aware of the need to manage a disease. One of these cases is given by participant 0107 when she says, "First I thought I was going to become dependent. That I was going to have to take medications everyday."

Participants were not grouped in only one type of perception. For instance, participant 0104 gives different meaning to her hypertension across time of initial diagnosis and current time. At the beginning she had spent some time managing chronic migraines and would not consult a physician. Afterwards she was medicated but would still think her hypertension was a disease that would come and go depending on

stressors like work and that it was manifested by symptoms like headaches. Current thoughts on hypertension are included under her understanding of the consequences of uncontrolled hypertension as a time bomb. Her previous thought on hypertension is detailed in the following lines.

*[During the time you had constant headaches can you explain to me why you wouldn't go to the doctor] I don't know, is the thought that something is going to happen to me. I would say is the migraine or my eyes needed new glasses. You always look for an excuse to not go to the doctor...is like a fear that if I went to the doctor and it was my blood pressure; I'm going to have to take five pills a day. I'm too young. I can't be like that now. That's for old people. Is like I'm 29 and I'm going to have to take medication, no way.
(Participant 0104)*

Participant 0104 was not alone when feeling constrained by pharmacological compliance. Participant 0110 had also explained her initial thought on this topic and how she managed it everyday. She was not restrained only by the medication but hypertension itself limited her life and activities.

*It created an anxiety, the fact that I was going to take pills instead of thinking I had a disease, all I could think was the fact I had to take pills...medication. It was such a torture for me to have a control over medication. I felt like I had to live under the constant use of medication. It cost me a lot. The first week the physician gave me medication that I had to take day and night, it was difficult to think I had to take that medication to control my blood pressure. It created on me an anxiety, a malaise, the fact that I had to take medication. Until now that I've been accepting it. It must be for the level of activity I carry at my job and outside of it. I'm always exposed to stressors so I had to be taking the medication for the blood pressure or it would go up. This created in me an anxiety. I have to take, I have to do certain kind of activity, I have to take my medication. If I don't, it can affect my health. It cut my freedom...my capacity to do things to live stressful situations has been reduced. I believe is my blood pressure...now I feel I easily get irritated. I have to be taking a tea so I can rest, if I don't do it my blood pressure is high...I organized a party for my mother and my son, and I ended up with high blood pressure. Even taking medication I have headaches. It limits my capacity to do other things. The rhythm of life I used to have is gone.
(Participant 0110)*

In particular for patient 0114 there was an uncertainty surrounding hypertension. She expressed her dissatisfaction of still having hypertension even when following what she thought were the guidelines to manage hypertension.

*I understand there is a situation which is happening in your body, and which you do not control. And this can affect your heart, brain and even your kidneys too...it creates an uncertainty because you think you are healthy and when you are told you have high blood pressure you feel there are a lot of things you need to take care of. But these are things you can't control and you don't know when that can affect your blood pressure to rise. I don't understand why, I know there are factors like salt, exercise, healthy lifestyles. You try to have that lifestyle but I don't understand how you make the effort of exercise, healthy eating, and compliance with the medication and still you continue to have high blood pressure. I don't understand why it doesn't lower once you follow the necessary precautions. It's always there and you need to manage it...in my family there are factors for high blood pressure, my mother died from an aneurism, which you would like to reduce. But there are things you can't control like your job stress, family stress. You'll like to say you won't get worried but I have to get worried. People tell you to take it easy on yourself but why should I? I can't be at my house at 6pm just watching TV....I have to establish priorities by taking care of myself.
(Participant 0114)*

Silent killer. Hypertension has been called the silent killer of women because of the common lack of symptoms which lead to improper compliance with treatment or management recommendations. For instance, participant 0104 explained the process of her acquiring disease awareness by the complications seen in her mother at a particular moment in her life. These are her previous actions before this episode and the reasons to changing her behavior.

There was a moment I thought that my blood pressure had to do with my work. For example, In my case, when I travelled to the countryside, which I do often, although I can't say my blood pressure was high because I didn't actually take my blood pressure. I didn't feel like I had high blood pressure, red ears, neck pain, and headache. I didn't have that feeling of high blood pressure. I dint' have anything. It was afterwards that I understood. It was not like that... [Interviewer: three years ago you were diagnosed with hypertension and prescribed with medication?] Uhum, but I wouldn't take it. I mean I would but then I would stop. If the physician would give me something I would

*take it and then because I didn't have anything I would stop. The crisis would come back and it was like a cycle. Leave it and take it, and so on. I can mention all the medications I took back then and which I would stop using eventually. Until now that I take my medication everyday. Three types of medications, every day. Three, every day...Before I took my medication I would arrive to the doctor's consultation thinking I didn't have high blood pressure because I didn't have a headache and when they took my blood pressure it was like 180. I even thought that the machine was broken, how was that possible?
(Participant 0104)*

*Blood pressure is an emotion you have during your day that makes you have a headache. When I heard I had high blood pressure I thought I was going to die. Now days I don't even feel like I have high blood pressure. I thought back then that every big emotion I had would provoke me a heart attack. I'm going to have high blood pressure and die. It was just not something I had before. Now when I think of high blood pressure I think it's like a cold, because I don't feel it...My blood pressure is hereditary, that's what I've been told. I eat everything; I don't deprive myself from anything. All I do is take my pill...I used to have migraine all the time before I knew it was my blood pressure. Now days whenever somebody tells me they have a headache I tell them they need to get it checked because your headache can be your blood pressure. I've been told to stop eating salt but I still do. I eat pineapple and mangos with salt. I eat everything with salt and I don't feel my blood pressure has risen.
(Participant 0112)*

*The first time I came to the doctor's office was because I had a headache and neck pain. When they took my blood pressure it was high.... I'm not sure if you get used to having your blood pressure high. My symptoms are not like a feel something. I just go to the doctor's office and when he takes my blood pressure it is high. I'm not sure if I'm supposed to have a symptom or is that I'm used to it. Sometimes from so much stress you don't feel any symptoms. Usual symptoms are headache and neck pain but you can take my blood pressure now and it will be high.
(Participant 0113)*

Symptoms seemed to be a measure of the severity of hypertension in some cases, like participant 0103. Although she has had complications related to hypertension, nose bleeds and a facial paralysis, she doesn't consider her disease to be severe.

*[Interviewer: What comes to your mind when I say hypertension?]
It's a disease. [What current effect has high blood pressure had in*

*your life?] Well, I'm not sure if you get used to it because my blood pressure is not like I feel it. When I go to the doctor and he takes my blood pressure, it's always a little bit high. I'm not sure if I'm supposed to be having symptoms of if I've just gotten used to them...my physician prescribed me medications, but since my problem is not that severe. Other people vomit, faint and when they go to the doctor their blood pressure is high. One time I got a facial. While I was eating I could feel how heavy my chewing was getting. When I got to the doctor they told me that I had my blood pressure high. I was released from the hospital the next day and afterwards I didn't feel anything. The day after that I went to work...We know we have a disease but we don't do anything about it...sometimes you think nothing is happening, I'm still walking, I have no symptoms but we have a disease.
(Participant 0103)*

For participant 0102 symptoms were warning for high blood pressure “I know when my blood pressure is high because I get a headache which is different from migraine; it even hurts more on the right side. My view is clouded and I feel I have it high.”

Knowledge of Lifestyle Recommendations

In order to allow participant to elaborate on their knowledge on how to manage hypertension, they were asked “what would you tell a friend, a neighbor or a family member if they asked you about how to deal with high blood pressure?” The question was made in a way that the interviewee could feel as an expert and not as being a judge. The question is also open ended; it does not specify lifestyle recommendations in order to give the participant the opportunity to develop her own ideas. To answer the research question on lifestyle modification, probing was used in cases where the respondent only described their knowledge on pharmacological treatment. Example of probing was: “What would you tell this person about non pharmacological treatment?” Other types of probing were used like: “Is there anything you would like to add to the recommendations you have given me?” Questions on recommendations to create a program to address high blood pressure were used to complement but not strict to lifestyle recommendations’ barriers.

Pharmacological treatment. More than half of the participants talked about the importance of taking hypertensive medication. Respondent 0107 expressed the following:

And the other thing, if they prescribed you with a medication for your blood pressure, don't forget it. You have to take it everyday. You become a slave. I'm not sure what's the statistic on that but I think eight out of ten people after 40 and even some before, take medication for high blood pressure. Is just something you can't avoid.

(Participant 0107)

The statement does not express the importance of taking the medication but it describes the frustration of adhering to medication everyday. These complement the anxiety of treatment theme illustrated before while discussing perspectives of hypertension.

Non-pharmacological treatment. Discussed by all of the participants; the most frequent recommendations were to reduce stress, weight control measures and physical activity. The first two were the most described in detail.

The majority of participants commented on the need to manage stress or emotional distress in order to control hypertension. Activities referring to stress management range from control of emotions, activities to get yourself out of daily routine and even physical activity as a way to reduce stress.

I think you have to do other activities to get out of the routine. To have activities that can be physical or exercising. Not only are you benefited from doing exercise but also is a distraction. I feel that the stress and emotional situations influence a lot. Emotional situations influence your stress. So the fact that you go out and have other recreational activities helps...but always with your medication. As I told you before, there are emotional activities which raise my blood pressure and I feel I'm forever attached to my medication. Like I said, a recreational activity can be reading not necessarily physical. Watch a movie. You need something to get you out not only from work routine but house routine too.

(Participant 0110)

Stress related to job requirements was not exclusive although it was common. Other examples of triggers for stress were dealing with hypertension management itself and family, even if the person did not have at the moment a conjugal family.

You have to take things with serenity. The truth is we live with high levels of stress. Stress at work. Stress at home. Daily life is stressing. The truth is I live saying nothing is going to kill me, may the world come to an end. I even tell my children not to wake me up if I'm called at midnight to give me a bad news, to wait until next morning and not to wake me up at night, unless is my father who is also hypertensive. Because I think it's important to have this serenity in order for your body to be normal.
(Participant 0108)

Sometimes you have to take things slow. You shouldn't pressure yourself so much for work, things of your daily life. Even in your family life. I think you need to relax more, enjoy more. At the end that's all you really take.
(Participant 0104)

Weight control was mentioned as a recommendation as frequent as stress management. Participants would usually start by saying that healthy eating was necessary in order to control hypertension. Probes were used to increase details corresponding to this answer. As for example, Participant 0111 when asked about the recommendations to manage high blood pressure said: "Eat healthy...Eat everything but in reduced portions, which I'm doing right now. Not eating fat or fried food."

When asked about the recommendation she would give to a friend with hypertension, some participant were very detailed and deviated into the importance of food as a manner to manage hypertension.

What are you eating? Why do you have high blood pressure? It must be something that is not good for your body or maybe eating a lot of salt. Because when you have high blood pressure you have to take care of yourself more, do a diet, walk more... I also try to control my weight, is not good for my asthma neither.
(Participant 0109)

First thing is food; you have to start controlling your food. See if you are eating salty food or foods that can turn into a factor that can provoke overweight and it would be logical that overweight is

*accompanied with high blood pressure. So it's only logical you need to control what you eat.
(Participant 0113)*

Barriers to Follow Lifestyle Modifications

Time. This was a given factor related to barriers among the majority of the participants. The lack of time, whether for job schedules, job requirement and family requirements, would influence the amount of time possible to do other activities like exercising. Time could also influence a person when seeking for a healthy dinner or even when trying to cook one. Lastly, the lack of time would also increase stress. Here are some of the quotes relating to the time barriers to follow lifestyle recommendations.

*Time. To do exercise, time. I think we live in a fast pace country. We get up early to avoid traffic so we can be at our jobs early because you need to check in or else they'll deduct from your salary, everything affects you. Then there's the warning and the stress. Everything contributes.
(Participant 0102)*

The following participant had a change in her job description over three years ago; she describes how the rhythm of her life changed as her job demanded longer hours of work.

*I used to practice sports...afterwards I didn't have the time. I would get out of my job at seven or eight, when you get out at that time you just want to go home. When I used to get out of my job at four I would dedicate 100% of my time to the activities...I don't do anything now...I just go home. When I get home is like a routine, you read the newspaper, use the computer, watch t.v. It is like a sudden change into a sedentary lifestyle...My job is so demanding that sometimes I even forget it is lunchtime and when I notice, it is two already, that doesn't give me time to find a restaurant so I end up eating whatever is available. That is not the correct way to eat at lunch, is just something to keep you going until later.
(Participant 0103)*

Participant 0107 has a very demanding job. She used to live in the country side and then moved to the city to occupy a higher position in her job. This position required her to travel a lot, spending long hours at the office and limiting her accessibility to her

usual meals. Her perspective gives two sides of the coin when referring to a life in the city in contrast with the country side.

*When you work it is difficult, at least for me, if you eat outside everyday. I used to work in the countryside with the same bank. I could go to my house and eat there, everyday and was still able to be back on time. Here in the city either you sacrifice yourself and get up early and make your food to bring it to work or you eat whatever is near. You try to choose among the restaurants that most fit to you and what you can eat.
(Participant 0107)*

Cost. One of the other faced barriers to follow guidelines related to lifestyle recommendations was cost usually related to healthier food.

*The economical factor because the basic market basket is more expensive. Is not everyday you can buy fruits and vegetables that are needed for a balanced meal...If salaries would pay more, people would be able to afford a more balanced meals...
(Participant 0102)*

*Is not easy to eat healthy, it's expensive. I say it and I'm single. If tomorrow I had children and other responsibilities maybe I would have to see what to limit in order to keep on doing it. A healthy lunch can cost me up to five dollars, if I go to the supermarket is the same...vegetables are expensive.
(Participant 0104)*

Accessibility. Expressed as the difficulty to have access to places where the person could find or buy food which corresponded to their needs for healthy food.

*Another barrier is that around here there are not that many places that offer a varied and healthy food. If I want to buy a fruit I have to buy from the streets or I have to go to the supermarket in front. What I try to do is make my own meals. After reading a lot I've managed to make myself a menu and bring my meals and that way I can avoid.
(Participant 0104)*

Social support. This category represented the need for companionship when following a recommendation as physical activity. It was also used when the participant referred the need for specialized help from a nutritionist, psychologist or another type of professional which could guide their process along the way.

When finishing the interview participant 0103 was asked if she wanted to add something else:

*I used to do exercise with my son when he lived with me. He would come with me to walk. He motivated me, now he only comes once in a while and you can't be walking alone on the streets...when you talk to somebody who is doing exercise, it gets you motivated too.
(Participant 0103)*

*I feel I'm weak when following eating recommendations. I feel I need help, but not from a nutritionist but from...I've looked for an addiction psychiatrist. I think I'm addicted to food. I know it can hurt me, but three hours later I will eat again. Sometimes I eat just to fill in a gap of not doing anything at the moment.
(Participant 0113)*

Sodium Intake Knowledge.

This topic was developed from the research question on knowledge of sodium intake recommendations. It is a continuation of knowledge of lifestyle recommendations and seeks to describe the knowledge, perceived barriers and actions towards the following of sodium intake management guidelines.

Participants were asked if they knew the recommended daily value of sodium intake for a hypertensive patient. Only two out of 12 participants responded with the correct answer, the rest of the participants denied knowing this value.

In order to know which products were recognized by participants to have sodium in any of its presentations, they were asked which products, liquid or solid, could have salt. The majority of participants responded by naming products under the category of artificial condiments and/or table salt. None of the participants recognized table salt as the only source of sodium and only one participant had knowledge of beverages having sodium in them. Some of the most popular products mentioned were cooking sauces like soy sauce, or Caldo Rica which is an artificial powder condiment.

After asking which products had salt, participants were asked how they had acquired knowledge that those products contain salt. Interestingly only one participant

received this information from her physician. Nevertheless, her knowledge on salted products was limited to products like salted crackers. The rest of participants' information on sodium came from reading labels, reading media information like materials on the internet and magazines or relying on taste. Only one of the participants who said she read the labels actually talked about the quantity she looked for in labels. The rest of the participants who also read labels would only read for the components or ingredients found in labels.

*I've become an expert at looking for salt. I look at the label and if it says it is only a type of seasoning then it sounds good but if it also has salt in it, then it doesn't work...some of the labels say zero sodium others 25. I'm not sure what the proportion is but for me it is a lot. So then I know I am not taking it. That is how you see me in the supermarket, this has only natural condiments and no salt added...I live my life looking at labels.
(Participant 0104)*

*When I read something about hypertension I just get into the subject. A few days ago there was something about hypertension and from there you start reading you shouldn't eat that much food with salt. Look for the vegetables, fruit which helps a lot...
(Participant 0103)*

When participant 0110 was asked how she knew which condiments had salt in it and which don't, she stated she knew because "I buy it and I know is a condiment," also she insinuates that taste is what guides her "it has to have some salt because it has flavor."

Source of knowledge for managing sodium intake was a probe added after the first two interviews as well as the practicality of the information given when put into their daily us was also asked. There was no consensus on the source of knowledge for managing sodium intake, half of the participants relied on some type of experience, three never had anyone to help them and only two received information from a physician. Table 3 below provides a summary of the sources of patients' knowledge and

whether or not they find such knowledge of practical use for the management of their daily intake of sodium.

In order to gain an idea of how participants deal with the management of sodium intake, they were asked if they cooked or if others cooked for them and what they did to follow the recommendation of lowering sodium intake according. Responses varied from less table salt and no condiment, only condiments and no table salt, and if they used condiments then they wouldn't use table salt. It was clear that their reasoning came from common sense more than a practical guide.

Making choices. It was difficult to differentiate those who cooked their own meal and those who were dependent on others to cook for them. Those who cooked would also sometimes require someone to cook for them (buy food or depended of some family member to cook for them) and vice versa in different points of their lives. There was a small number of participants who solely dependent on others to cook for them. When asked about how they managed to control sodium intake the most common answer was that given that it was difficult to control salt intake in restaurants or when family members were not used to cooking low in salt, all they could do was choosing food that according to them didn't have that much salt or just not adding more table salt to their food.

I don't cook. I tell my husband to only add garlic and a small amount of salt to the meat. Salads I just add light dressings that don't have that much salt or lemon juice... Today I just ate a soup and a cranberry salad. I taste the saltiness in food, I eat my meals low in salt, when is too salty I just can't eat it. What I try to do is not add salt to the salads.
(Participant 0114)

What I do is I just don't add that much salt to my food. I don't really cook, so it is really when I am eating a salad or green mango with vinegar. I don't add as much salt like I used to...I don't eat hamburgers, just salads when I buy food from fast food restaurants. If it is not a fast food restaurant then I would buy grilled chicken and mashed potatoes for example. That is how I control according to myself.
(Participant 0113)

Well a few days ago I bought this soup and saw it had a lot of salt. The boxes are right there, I didn't eat it. But I don't eat salty food like that all the time. I rather eat low in salt... When I buy already made food, if is salty I won't eat it.
(Participant 0111)

When I cook I can control the amount of salt I put; in restaurants I can't. When I go to a restaurant I just don't add more table salt. [Interviewer: What if the food they bring you is salty?] I won't eat it, I will just return it. I just can't tolerate a lot of salt, not so much because of my blood pressure but because I'm used to eating with low salt.
Participant 0107

Table 3.

Source and practicality of knowledge to manage sodium intake on daily basis

| Participant | Source of knowledge | Practical | Quote |
|-------------|---------------------|-----------|--|
| 104 | Experience | Yes | "Internet... You find lots of sites in the internet. You find a lot of publications from serious people and serious articles. With time you learn to identify...this publication is from that doctor, that organization..." |
| 0108 | Experience | Yes | "When I read, sometimes I relate to what is happening. I read in the newspaper that salt elevates iodine and I'm allergic to that and I prefer not to get swollen." |
| 0106 | Physician | Yes | "Well I haven't gone to a nutritionist but my doctor tells me no salt, taste food." |
| 0107 | Physician | No | "Physicians always tell you to avoid the excess...they don't tell you exactly how to. You try by common sense, well I'll add less salt to the food, I won't put salt to this, and I'll add some to the salads, but other than that." |

Tasting to fit. Participants who were able at any given time to cook their meals gave more options on how to control their salt intake. They would choose either from

using just table salt or using artificial condiments instead of table salt. Still, for them tasting was important to know how much salt they could add when preparing their meals.

As an example of the need for a good taste in meals, participant 0110 explains how she has decreased her amount of table salt but still keeping with the use of salted condiments. She commented on the need to do this as a slow process. Still, her choices when buying food would include Chinese takeout which by default already has soy sauce.

When I cook I feel I've reduced the amount of salt, I use to make food very salty. I try to reduce the use of table salt but not so much the condiments. I use Caldo Rica and I try not to use that much salt. But I do like food with flavor with condiments. So what I try to control is the amount of table salt not the condiments. I'm just being honest. If I used to use half a tea spoon then I'll use even less. My sauces I mean diced onion and garlic, a little bit of salt and vinegar. I leave that prepare in advance and I'll save it in the refrigerator. So when I'm cooking the meat I'll use some soy sauce for it to absorb the taste and a pinch of salt. Before, I used to use Caldo Rica and a lot more. But there has to be a pinch of salt.

(Participant 0110)

The following participant explains how her family is being affected also by her cooking in a healthier way. She commented it wasn't an easy process to get used to eating with lower amounts of salt but she has been doing it in small steps. It was curious to find she would add sugar to her sauces believing that this would contrast the effect of salt in her food. She also added that many of her choices in how she cooked her meals were secondary to her gastritis problem.

I cook with low salt. I have a problem with my son and daughter because they say I cook with too little salt. I even add a little bit of sweet to my sauces. My family ask me why my sauces are not acid and with only a pinch of salt. I add a little bit of sugar to my red sauces of tomato. If I cook with 'cubitos Maggy' I won't add salt...

(Participant 0108)

In the case of the following participant, she had chosen to eat food which didn't require salt to be added like salads or fruit, she wouldn't even add dressings. Her view

was interesting because of the fact that she was one of the few who knew the recommended value of salt intake per day. She commented that since it was hard to keep a measure of her salt intake she would just go to the extreme of that rule and not include salt in her meals at all. If at any moment she had to buy food she would spend the rest of the day and the following morning balancing this intake by just eating fruits or vegetables.

*Everyday, let's say for example: when I'm having breakfast, I will eat fruit, cereal or yogurt; so there is no problem with salt. During lunch, I always include a salad which usually has tomato and lettuce or any other vegetables, since I don't like vinegar I usually eat my salad plain without any flavor. That is the lettuce and tomato without vinegar or salt, that's how I end up eating it. At dinner is more difficult because of the meat. With meat it has been difficult to leave the salt out. I just can't eat the meat without salt. Beans I can eat without salt. Not that much rice. What I'm trying to do is at least eat my salads without salt.
(Participants 0104)*

This last participant commented on how she would prepare food by eyeballing table salt and not using artificial condiments. In order to actually know how well she was managing her daily sodium intake further test would actually be needed because what is not salty for her could be for someone else. There is no real measure on how to quantify the amount of sodium she is actually using.

*I don't eat sauces, fried food. I try to eat everything grilled and with fruit and vegetables.[Interviewer: How do you control your salt intake when you cook food?] I eyeball it, I don't measure it. I just taste it and add if necessary. I don't use tomato paste; I use tomatoes, and other vegetables.
(Participant 0102)*

Barriers to Salt Intake Management

The following results describe the barriers to follow the recommendation of sodium intake according to the participants view. The research questions used to describe this point were: *what were the possible limitations to control salt intake, how did they overcome these limitations and what would help them lower their salt intake.*

Taste. How food tasted was used by many participants to moderate salt intake but it was also described as a barrier. According to participants, food with salt would taste better. Even participants who would control salt intake perceived this as a barrier to start following, or to continue following.

*You like to eat food that has condiments. Modifying your taste is not easy, but you can do it. You like to feel the taste when you eat. Nobody likes tasting things that won't give a kind of satisfaction to your palate. But if that is health, than you have to do it, but I feel is difficult. My family and I are from the countryside where we enjoy everything with condiments.
(Participant 0110)*

Others would express their barrier to reducing sodium intake as a consequence of a habit as participant 0103, "Generally I'm one of those persons who like their food salty and with condiments...for instance, plantains already have salt and still you add more salt and ketchup which also has salt in it," or as behavior hard to keep up as participant 0106 explains "Sometimes I get bored of eating food like this."

Measure. It was interesting to find that the only two participants who had knowledge on the amount of daily sodium intake recommended for hypertension were also the only ones to detect a practicality issue when trying to follow this measure. The majority of the participants when explaining how they would control their salt intake would mention tasting, eyeballing it or not using more salted products, none of them ever talked about measuring salt in order to control it.

*I read it once when I was looking for the DASH diet. Supposedly that diet is to put a stop to hypertension. I believe it said it was a tea spoon of table salt. I remember it was this little table spoon. But really, who can measure that? I can't. How could I know, this has this, this doesn't and then I sum it up? That's a lie. That's why I prefer to be in the extreme side.
(Participant 0104)*

Yikes, it is said to be one tea spoon the little tea spoon for the whole day... [Interviewer: what would make your barriers to manage sodium intake easier?] Information on how much salt, but not like sodium which nobody understands but to know how many grains of salt you can use, that way you can add or take... just like

*when you go to a fast food restaurant and it tell you how many calories you are eating, if they could also tell you how much salt... nobody tells you how much sodium does a fried chicken have.
(Participant 0113)*

Can't control how others cook. Some participants depended on others to cook for them whether it was a family member or the need to buy food. If the family member cooked without taking the precautions of sodium daily intake, that would become a barrier to the participant. Participants expressed frustration when depending on other ones to cook for them, at restaurants "Food in restaurants is just ordered, you don't know how much salt it has," "The ideal thing would be that I could buy food without salt in it. That I could choose... but who is going to sell me food without salt?" or when they depended on a family member to cook for them "In the afternoons I eat over at my moms, they eat normal they all do, normal with flavor," "I depend on my husband to eat and in how salt he adds to our food. When I need to buy food in a restaurant, what am I going to eat?"

Balancing through the day. Overcoming the self-proclaimed barriers was also part of this study purposes. It was done by asking participants how they coped with the described barriers to following sodium intake restriction. This category summed up all the strategies participants would use to cope with the barriers they found to exist to following sodium intake restriction. Balancing through the day corresponded to all the balancing activities, substitution of food or making up for weeks of bad eating habits.

*When my job requires me to travel to the countryside, the food served is buffet, nothing fancy, typical food from there like pork and fried food. When I come back home I have a guilty conscience, so I eat fruits trying to balance. I make a change... I eat lots of fruit to balance the sin at least. It's the way I control myself. If I eat too much out there then when I return I'll eat lighter food with less salt, more fruit and vegetables.
(Participant 0103)*

Let's assume I get home and I don't have time to cook. I'll go to the supermarket and buy some grilled chicken. But that has a lot

*of salt you know? So that is my dosage for that day, so next day's breakfast and lunch I can't be eating like that again.
Participant 0104*

Access to healthy sodium-reduced meals. All participants were asked about their opinion on what would make it easier for them to follow a sodium-reduced diet. The most common answer among participants independently of their choice of buying or cooking food was to gain access to healthier choices of food which could cover their low sodium needs. In the context of the question “what would make it easier for you to follow these recommendations?” access to meals reduced in sodium can be taken either as a barrier or as an easier option for participants to manage daily sodium intake adequately. Responses were mostly skewed into finding places or options that would provide for their needs “What would make it easier? That somebody would give me breakfast, lunch and dinner with my requirements of salt”. The following quotes might illustrate this point of view as well.

*Well I think the ideal thing would be that when I buy food, this one didn't have salt in it. That I could decide but that is asking for the impossible...I know no one around here is going to sell me meals without salt.
(Participant 0104)*

*Food should come already like that. I buy food in restaurants all the time. I can't just eat hospital food, I need something with flavor...it would be like a light meal. Meals with flavor but less salt, I would use that.
(Participant 0110)*

According to this last statement, participants do not only need access to meals that are low in sodium but also meals which taste good as well. As considered before, taste is an important part of eating and of following recommendations on salt intake. When food doesn't taste good this might result in patients quitting low salt intake behavior.

Chapter 5: Discussion

Overview

Themes and analysis are discussed in this chapter to allow a better understanding of results and comparisons made in other research which studied similar topics. The findings of this study may be used to develop a more concise instrument to be applied to a more generalizable population.

Motivations to Follow Hypertensive Guidelines

The purpose of exploring participants' perspective on hypertension was to develop a view on how this could affect their overall following up of guidelines for the management of hypertension. In past studies, explanatory models given by the patient on a disease like hypertension have showed the effect perception has in the compliance of patients to the given recommendations (Taylor, et al., 2012; Heymann, Liora, Zucker, Chodik, & Shalev, 2012). Participants' different ways in describing how they perceived their disease were in fact their personal drives and discouragements to follow guidelines. For instance, participants who considered hypertension as a disease with possible complications (time bomb) if not treated, whether by personal experiences or family history, were more detailed on how they managed their hypertension and how this would or could impact their quality of life, family or their perception of being healthy. Similar to another study which focused on lifestyle changes in metabolic syndrome, fear of being unhealthy or the consequences of being unhealthy was a driver in patients to stay motivated in following recommendations (Kirkendoll, et al., 2010).

Symptoms could encourage participants to take care of themselves, as can be seen in participant 0104's response when asked what the benefit from following hypertensive guidelines was, "I can't remember the last time I had a headache." On the other hand the lack of symptoms can become a discouragement to follow guidelines. Participant 0103 was asked about the effect of hypertension in her life to which she responds "I'm not sure if you get used to having your blood pressure high, because my symptom is not feeling it." Although she had passed through a facial paralysis and nose bleedings, still she stated her disease was not that severe. Hypertension is known as a silent killer because of the lack of symptoms that make it impossible for patients to know when they have the disease or if their blood pressure is in normal ranges. Bokhour and colleagues (2011) described in their findings that the lack of symptoms affected compliance and subsequently the management of hypertension in African American, Latino and white patients.

Patients' Mode of Managing Hypertension

Depending on how participants perceived their disease, different types of managing strategies appear. Their perception about it could be shaped up by personal experiences, the presence or absence of symptoms and even by the presence of another disease which could be the priority for following hypertensive guidelines (Heymann, Liora, Zucker, Chodik, & Shalev, 2012).

Committed. Patients like 0102, 0104 and 0108 were the most knowledgeable on hypertension causal factors, complications, guidelines on lifestyle modification and were also the strictest followers of guidelines. For instance participant 0102 was able to mention most of the recommendations for the management of hypertension. Even though she was able to mention barriers as well as following guidelines, she had found coping strategies to deal with the barriers and was deeply motivated by family to continue management. Participant 0104 was very similar as well, she had passed

through a period of initial disbelief to treatment and for personal experiences she had gained what she called disease awareness. Since following her strict knowledge of guidelines she has been able to avoid symptoms which originally had been strongly manifested as headaches. Participant 0108 was so strict with guidelines, that her choices of food were affecting her family as well, possibly in a positive way given evidence that supports that lifestyle modifications are not only of benefit to the hypertensive patient but for others as well (Chobanian, et al., 2003).

Compromise. This theme represents the behavior of some participants who act according to their knowledge and symptoms in order to follow guidelines. For instance, in this study non-compliance to pharmacological treatment was hardly mentioned by participants. Actually most participants mentioned pharmacological treatment among their recommendations to control hypertension. In some cases, pharmacological treatment was the most followed rule, as in the case of participant 0112 who didn't actually follow lifestyle modifications other than "eating a little bit of everything but in small portions." According to her she would only follow salt intake recommendations if her physician told her she was going to die if she ate too much salt. She later added "I need an experience or else I'll just continue treating myself as it is."

As a subtheme of compromises, having another disease, was expressed by some of the patients interviewed in this study as a factor influencing their lifestyle modification techniques or how they prioritized their other disease over hypertension. In the case of participant 0107 who had an antecedent of lumbar pain over a period of years and which had required surgery, hypertension was the least of her problems. Actually all she really did to manage hypertension was to take her medication, eating foods low in sodium was just a learned habit from her childhood and she depended solely in tasting food more than actually knowing how to read or interpret labels and avoiding salted products. Participant 0108 was influenced by her gastritis which did not

allow her to eat food with lots of condiments. She would even add sugar to tomato sauce thinking this would contrast the effect of salt.

No treatment. Although other studies have found that pharmacological treatment is difficult to comply with, participants in this study would in almost all cases mention it. Although some lifestyle measures were not followed, in most instances there was not one patient who was not trying to manage hypertension with one or two of the guideline recommendations, including pharmacological treatment. This finding may be an outcome of volunteer bias (Salkind, 2010).

Lifestyle Recommendations: Knowledge and Barriers

The most common topics among the participants when discussing lifestyle modifications was stress management and techniques for weight management. Not only did participants speak about lifestyle modifications as a management strategy but as a possible cause of their disease. It was interesting to find that measures as alcohol moderation, tobacco avoidance and quality sleeping, as proposed by the Panamanian guidelines, were hardly mentioned.

Stress management. Considering that this study was done in a work environment, work related issues were expected to appear (Wang, et al., 2007; Nilvarangkul, et al., 2012). Stress as a perceived factor for uncontrolled hypertension was related to work, family, economical issues and lack of time. This finding was somehow contradictory to Taylor and colleagues (2012), where male participants were predominantly more aware of work related stress than women even when there was no difference in gender and employment rates. This study found that women identified work stressors as their main cause for stress. Participant 0102 explained that hypertension had affected her currently by making her more tolerant and easy going. She explained various reasons on how work was a determinant of stressors in her life. Only participants

0104 and 0111 gave examples on how family could be a stressor in their lives. Further studies in both genders need to be done in order to resolve this discrepancy.

Weight management and healthy eating. According to the Panamanian guidelines for hypertension management weight control could be achieved by a variety of measures which include cooking techniques which do not require frying, eating vegetables, fruits and drinking water, among others. Participants' responses included healthy eating as an imprecise answer to which probes needed to be done in order to clarify what healthy eating meant. Examples of probes once the participant was asked about recommendations to manage hypertension: "...eat healthy [Interviewer: what do you mean by eating healthy?] Eat everything in small portions, which is what I'm doing right now." Participants seemed very aware of the correlation between weight management techniques and having an optimal blood pressure. Although all participants communicated by different manner that it was basic eat healthy, the profundity of the knowledge on healthy options should be evaluated in further studies. An assessment of patients barriers has been identified in other studies has been more beneficial when the study population already understands the importance of healthy eating. For instance, in the case of perception of hypertension by homeless individuals, diets which included fruit, vegetables and less fried food were well known. Still barriers to following this knowledge were heavier when trying to apply it to their daily lives (Moczygemba, Kennedy, Marks, Goode, & Matzke, 2012). Still patients can benefit from understanding the specific rules on how to manage their weight and food intake. As found in this study, Ballou-Nelson (2012) identified a lack of specificity on how to actually implement lifestyle modifications as healthy eating and weigh management on daily basis.

Individualization and obtainable goals. Guidelines for lifestyle management call for an individualization of patients and their needs (Organización Panamericana de la Salud, Ministerio de Salud de República de Panamá, 2009; Mancía, et al., 2007),

requiring health personnel to not only do an assessment of lifestyles but to comply with a continuing effort to cross check progress in following appointments. Nevertheless, in a study to determine the frequency and content of lifestyle counseling about physical activity, nutrition, weight loss and smoking by general practitioners in hypertension visit, only 17% of recorded visits had a component of lifestyle advice. This advice was in most cases made without any evaluation of the possible motivations or barriers for patients to follow the given advice (Milder, Blokstra, de Groot, van Dulmen, & Bemelmans, 2008). Issues surrounding weight control measures varied from cooking methods to eating fruits and vegetables and using alternative methods to deal with weight management. Weight management through healthy nutrition has been recognized to be an important factor in many chronic diseases including diabetes, hypertension, and obesity, among others (World Health Organization, FAO, 2003). Participants would distinguish weight as a factor limiting their hypertension control. This is seen in the case of participant 0109 when she is asked about what she would recommend to a friend with hypertension “What are you eating? Why do you have high blood pressure? It must be something that is not good for your body...you have to take care of yourself more, do a diet, walk more.”

Participant 0106 was not only motivated to manage her hypertension by the thought of complications like death, but she had also denoted some responsibility for her disease. She credited lack of exercise and eating unhealthy food with the development of hypertension. It was seen as a benefit to an ideal body image as participant 0104 added when she was asked about the benefits to following healthy lifestyles. Nevertheless specificities around weight management should be consulted with the patient in order to work with the patient’s idea of being healthy. For instance, Participant 0113 is an example of the need to individualize the patients’ needs. After being sent by the organization she works for to consult a nutritionist for her overweight and

hypertension, she was surprised to find out her nutritionist has weight issues as well.

This is how she narrates the situation in her own words:

*I went to a nutritionist once, at least for a day because the bank sent me. But my nutritionist was fat. She told me not to look at her but I did. How can she tell me not to look at her, if she is as fat as me? So I couldn't respect her. She is going to tell me that I need to lose weight but, do I really want to lose weight? They tell you what to eat so you can lose weight but they don't tell you what can happen to you that you can die if you eat that. Is like I heard someone say one time, when you are eating what you shouldn't is like putting diesel in your gasoline car.
(Participant 0113)*

When source of knowledge for lifestyle recommendations is taken into consideration, just a very small number of participants would acknowledge their physician or health personnel with knowledge of the recommendations. Participant 0102 states she knew the recommendations because of her physician. Participant 0108 said she had learned from brochures given by the physician. Clinical inertia has been described based on inadequate pharmacological treatment in studies defining uncontrolled hypertension factors (Rose, Berlowitz, Orner, & Kressin, 2007). Whether this last finding can be extrapolated to lifestyle compliance would need further research.

Social support to handle the emotional side of hypertension has been described in the literature as well (Greenwood, Muir, Packham, & Madeley, 1996), being in more cases more beneficial to type A personalities in reducing the recurrence of cardiovascular disease (Freidman, 1986).

*Well there are a few things I would like to add. Now that I'm talking to you I really feel like I'm going to be more aware of my high blood pressure being a product of what you eat, routine, not doing exercise. I'm feeling like I want to put on some running shoes and walk this afternoon. Sometimes you get home late and you just don't feel like it...
(Participant 0103)*

Participant 0103 was aware of many of the lifestyle modifications needed to manage hypertension. She had explained her barriers to comply with these guidelines

as a cause of motivation. After talking about her barriers, the fact that she was talking about them seemed to be a way for her to internalize what she knew and translate it into actions. That is how she ended up the interview.

As discussed before, although the focus of this study was not on compliance to pharmacological treatment, questions were open ended and general enough to allow the participants to develop their own priorities on how to manage hypertension. Except for one participant, following pharmacological treatment was not mentioned as a barrier by the rest of the study participants. As in the study by Ballou-Nelson (2012), lifestyle modifications are in some cases more difficult and require complex behavioral changes. On the other hand, cultural surroundings explained in Kirckendoll (2010) were crucial in the implementation of lifestyle changes especially in the African American population. Cultural and ethnicity-related perceptions of disease were only mentioned by one participant when relating to reasons for preferring salted food. . Working with patients to recognize hypertension as a disease, identify barriers and coping strategies while considering the context in which participants live and work can help the patients to become empowered in their own management of disease conditions (Elzen, Slaets, Snijders, & Steverink, 2007).

Environmental factors. Barriers to comply with lifestyle modifications as expressed by the participants had a lot to do with their surrounding environment. Daily hassles as traffic jams, not having accessibility to healthy food and even the need for having a space to permit some leisure during lunch hours that would allow for some relaxations appeared to be problems for participants. Participant 0107 even gave a personal experience that could encompass all what was said. She used to live in the country side and now that she had moved to the city it was impossible for her to get home and eat her usual food. This would make her dependent on others to cook for her. Participant 0110 explained the need to have a space in the work environment that could

be used to relax during lunch time or even to use for exercise whenever possible.

Participant 0104 also added to this point when she stated that sometimes she would have to get out of her working environment to relax and have lunch but had no place to do so except outside of the Bank's facilities. In general, the poor access to healthy food whether for the cost, the insufficiency of salary earnings to buy healthy food or just the unavailability of healthy restaurants around the work area were limitations in the case of many of the participants.

Sodium Intake Recommendation: Knowledge, Barriers and Coping Strategies

Gaps in sodium intake knowledge. Considering the results of this study, it is interesting to find that only two participants had knowledge of the recommended value of sodium daily intake and even when this knowledge is present, it is only directed towards salt. The intake measure known by the participants who knew the daily intake value was given in terms of a teaspoon of salt, which as the literature states is an accurate measure for sodium chloride but does not consider other types of sodium combinations (Institute of Medicine of the National Academies, 2010; Solis & Tejeira, 2011). When asked about their knowledge of products containing high amounts of sodium, the majority of participants were aware of sodium in table salt and artificial condiments, but were less aware of sources like preserved foods. For instance, only one participant mentioned processed meat as a source of sodium. Sodium knowledge and health literacy have been found to be independently associated with hospital readmission in an urban setting for patients with heart failure (Kollipara, et al., 2008). Preserved food accounts for 77% of sodium intake in the general population (Solis & Tejeira, 2011). More than 75% of sodium content is added during the process of developing processed food (Kollipara, et al., 2008). Patients' knowledge of daily sodium intake was on most cases originated from some kind of personal experience and not by physicians counseling. The implications of this result may be reflected in the controversies found

throughout the data. Patients who didn't know the recommended value of daily sodium intake or products containing sodium still said that they ate low in sodium and that they followed relevant guidelines. This raises questions like how can patients avoid eating high sodium meals when information on high sodium products is not known or understood appropriately? Sheahan and Fields (2008) in their study of sodium dietary restriction found that a predominant theme among their participants was the lack of education by healthcare providers about how to follow intake recommendations.

Lack of practicality of guidelines. When analyzing the barriers identified by participants in this study (taste, measure and having other individuals cook for them), it's clear that there is a need for information on practical tips on how to follow recommendations on lower sodium intake. As indicated in the literature, there are many properties that make salt a cheaper and tastier choice (Institute of Medicine of the National Academies, 2010). Barriers to sodium intake restriction faced by patients like the reduced flavor of meals and having the need of other individuals to cook for them are no different than the barriers found by other studies (De Freitas Agondi, Bueno Jayme Gallani, Cornélio, & Matheus Rodrigues, 2012). It's also difficult to actually quantify a hypertensive patient's sodium daily intake unless a proper record is kept of their food and sodium. Such record could be obtained from more elaborate tests like a 24 hour urine laboratory test. Even so it would be difficult to ask patients to sum up their sodium intake by looking at labels if this task has not been explained (Sheahan & Fields, 2008; Sánchez, et al., 2012). It's essential to educate patients on what type of food needs to be avoided and to give them information on the kind of food that can be both tasty and a healthier choice considering sodium intake. Working strategies with the patient to suit restriction of sodium intake may be a choice. For example, in a study which included 49 hypertensive women in Brazil researches would help participant to provide a strategy to stick with sodium intake recommendations. Participants in this study elaborated coping

strategies to deal with possible barriers and highlighted the use of natural condiments, or preparing one's own food separately from family members, and asking others to add table salt if needed (De Freitas Agondi, Bueno Jayme Gallani, Cornélio, & Matheus Rodrigues, 2012). In the case of participants in this study, balancing through their daily intake or even weekly intake of sodium was their choice of action to overcome barriers.

A call for help. Overall analysis of results on sodium knowledge, barriers and coping strategies seem to point to the need for policy changes that can assist the patients with following guidelines by providing a supportive environment. According to a study made to model the impact of salt reduction at a policy level (national campaign ads and, voluntary reduction in the salt content of processed food and condiments by manufactures), approximately 8.5 million deaths could be averted in low income and middle income regions solely by reducing cardiovascular diseases (Asaria, Chisholm, Mathers, Ezzati, & Beaglehole, 2007). The United Kingdom has implemented national strategies to reduce salt content with the voluntary involvement of the food industry, improved food labeling and public awareness campaigns for modest reduction in salt intake. Although there has been a reduction in hypertension trends since 1994 and significantly more during the time of the salt reduction strategies, the latest study could not prove how much of the improvement was an outcome of policy changes in England (Millet, Lavery, Styliano, Bibblins-Domingo, & Pape, 2012). The use of labeling that can be understood by pictures or colors instead of numbers. It has been evaluated before with success in countries like the United Kingdom (Sanz-Valero, Sebastián-Ponce, & Wanden-Berghe, 2012; Vannegoor, 2009). Nevertheless, it is important to consider the unique characteristics in population. For example, in a study of the Kuna Indians of Panama, sodium intake seemed to be higher in the rural population and similar to the United States sodium intake when compared to another more urban population. And, although blood pressure was slightly elevated in the first group it did not fall into the

category of hypertension, suggesting that in this case other factors in the diet should be assessed to make any assumptions (McCullough, et al., 2006; Sánchez, et al., 2012).

Theory of Reinforcement

Taking in consideration all of the findings of this study, a theory emerged in stages to explain the relationships among factors relevant to compliance with guidelines for the management of hypertension.

In the first stage once a patient is diagnosed with hypertension, the many factors which work as encouragement and discouragements of how the patient perceives and follows hypertensive guidelines on lifestyle modifications and sodium intake are identified. Studies which have examined the effect of the constructs of the health belief model when applying it to chronic have been successful in strengthening the association between factors at the intrapersonal level and their interaction with a disease (Beckers & Maiman, 1975). The theory proposed by this study (Figure 1) implies that a person's beliefs, knowledge and attitudes shift in time as new experiences are lived. Experiences can be related to the disease or not, such as having a family, a new job and new tasks, among others. In the transtheoretical model, the individual is thought to have different needs in their life stages. Hence, there must be a continuing effort to analyze motivations, barriers and coping strategies along the timeline of the disease. Factors which affect the perception of hypertension are, for this study, considered under the intrapersonal level and include personal experiences relating to family history of disease and complications, being diagnosed under a critical circumstance, having symptoms or not in order to weigh the severity of the disease and, the acquired or given knowledge of the complications of hypertension. An initial assessment by the physician could identify the initial intrapersonal triggers through questions as "How were you diagnosed with hypertension?" "Do you have any history of hypertension in your family?" "Do you have

any history of hypertension complications in your family?” and “What are the symptoms that made you aware of you disease?”

In the second stage attitudes towards the guidelines are represented by behaviors indicating that the patient is fully committed to the given recommendations on hypertension management, or will compromise on treatment depending on the priorities given by him/her, or follow no treatment. The behavior adopted by a patient can only be assessed at this point of the research by evaluating how the patient is dealing with his/her hypertension. Questions directed at reducing the patient’s urge to satisfy the physician can be used to indicate what the patient has absorbed of the given recommendations and how they are implemented in their own life. As an example, the question used to evaluate the knowledge of lifestyle recommendation in this study was “Given your experience with hypertension, what would you recommend to a friend, a neighbor or a family member if they seek from you a way to manage hypertension?” Responses to this question provided a view of what participants knew about hypertension management. Added questions such as “Is this what you’ve been trying to do?” could be probed as well to provide additional insights which allow for an understanding of how or why a patient’s mode of complying with guidelines shifts across the possible ways to manage hypertension as daily lived experiences change.

In stage three the reasons for barriers and coping strategies are outlined as factors that may reinforce behavior in a positive or negative way. Initial triggers may play an important role during the whole course of the illness and treatment as positive predictors of the behavior. These include past experiences (family history of disease, event which prompted the diagnosis), knowledge on the course of illness, expectancy of a future as maintaining family bonds or quality of life. Negative reinforcement of behavior may be the lack of guidance by health care personnel, perception of lack of control and lack of obtainable goals. These last negative drivers can be turned into positive

reinforcements which could aid during disease progression by assessing patient motivations, barriers and coping strategies as a constant part of the consultations of a hypertensive patient. Although this theory has emerged from the data, further studies need to evaluate if it can cover the complexity of adopting healthier behaviors in a chronic disease like hypertension.

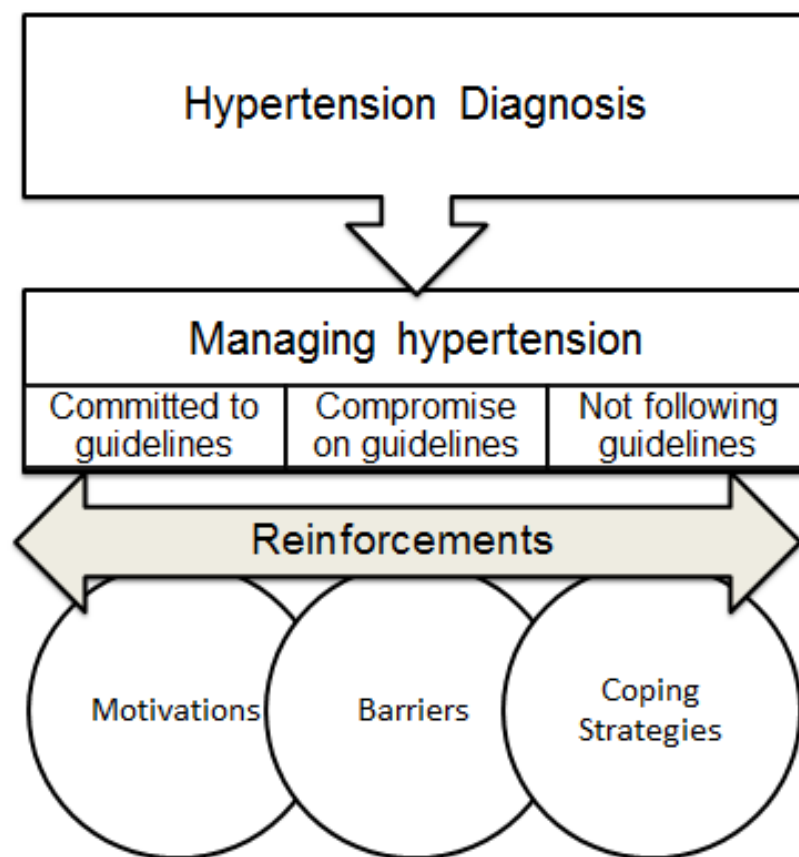


Figure 1. Theory of Reinforcement.

Strength and Limitations

This study used purposive sampling of woman working in an organization while dealing with every day matters and hypertension. The sampling technique makes it

possible to conclude more effectively in a specific study group. Given time constraints saturation was obtained but could have benefited from more interviews in order to verify themes. Hence the small number of participants interviewed is considered a limitation. Given appropriate time and resources a larger sample could provide more generalizable results. However a study seeking to understand compliance with recommendations and guidelines for lifestyle modifications in hypertensive women in their middle age has not been done in Panama before. Even as a pilot study, its findings provide a guide for future healthier lifestyle programs, especially in its emphasis on considering the barriers and motivations experienced by participants. Another important strength of this study was the use of all the necessary steps to assure quality and internal validity to the study instruments: relying on consensus of research team members on coding, theme recognition and theory generation, as well as considering the patient as the expert while constantly assuring the quality of the interpretations by consulting with participants during data collection and analysis of findings. Therefore, the finding of this study, although not generalizable to a different study population other than the women working at the selected organization, can represent the voice of the participants who were interviewed and can provide some guidance to further research.

Chapter 6: Conclusion and Recommendations

In Panama hypertension prevalence has reached 38.5% in two major cities of the country. If the density of the population in the two cities is considered, this prevalence rate translates into further complications given the fact that half of these patients have uncontrolled hypertension. Also considering the genetic background of this disease, the shifts in lifestyle trends in an urban population towards sedentary living meant an increase in the prevalence of obesity among other unhealthy outcomes. It could, therefore, be expected that this number will increase once the children of urban and sedentary patients become adults as well. This could imply the use of state finances towards handling the possible complications of stroke, renal failure and dialysis, and loss of productive individuals in the workforce.

Hypertension management considers the use of pharmacological and non-pharmacological measures as explained in the Panamanian guidelines for hypertension and related articles as the JNC VII and European guidelines. Non-pharmacological treatments have been considered as cost-effective alternatives which do not only complement the use of pharmacological treatment but which can alone reduce blood pressure in some cases. Lifestyle modifications in nutrition and physical activity are not only taken in consideration of hypertension but in other chronic diseases, mental health, metabolic syndrome, diabetes and more. Shifts in nutrition habits as a result of urbanization and working environments have made it difficult to comply with some of the recommendations for lifestyle changes even when these are recognized as important factors to deal with and prevent diseases. This no different in developing countries like

Panama, where chronic diseases as cardiovascular disease are now among the top ten causes of death. Adopting measures to ensure that behavioral changes towards healthier lifestyles are considered in the guidance of hypertension control can aid in the prevention of hypertension complications and other diseases as well.

Studies in other countries which examined the perspectives, knowledge, attitudes and behaviors of hypertensive women when following guidelines for the management of their disease used the tools of grounded theory to obtain answers to research questions through emergent themes. Among the themes these studies found is that a patient's perspective of disease yields motivation to discover how to manage hypertension. In this study, knowledge on lifestyle modifications included overall measures considered by the Panamanian guidelines. Participants were most specific when commenting on stress and weight management techniques as "healthier eating". Even when knowledge of lifestyle modifications was present, barriers to following lifestyle modifications were expressed by participants. Barriers included time, cost and access to healthy food, which requires the re-evaluation of guidelines in light of these barriers. As stated in the study by Ballou-Nelson (2012), even when physicians give lifestyle counseling this might not be detailed or practical when put into practice. Hence, as this study found high sodium intake persisted as patients depended more in taste than actual knowledge on how to manage sodium intake. There seems to be a need to individualize the treatment by guiding the patient through the recommendations with practical advice and the identification of obtainable goals.

Recommendations for Action

Workplaces are ideal for implementing health promotion activities. The fact that legislations in the Republic of Panama makes it possible and imperative for organizations to have an occupational health clinic relates to the notion that preventing

illness in a work place is both cost-effective and necessary. From the results of this study certain realities seem to be apparent for hypertensive women in particular.

On the intrapersonal level, the gaps in knowledge of lifestyle modification recommendations suggest that there is a need to disseminate both the knowledge on the course of the disease to raise awareness of hypertension complications and on lifestyle management techniques. Barriers and motivation need to be constantly evaluated until a patient achieves the outcomes in the recommendations.

On the interpersonal level, the relationship between the physician and the patient should be strengthened by increasing lifestyle counseling and evaluations. Workplaces provide an advantage. They allow for social support activities. As such, workplace group activities should be included in programs promoting health. Integrating other professionals to supply nutritional support, emotional support and redirecting patients to trusted sources of information need to be a policy priority in order to reinforce hypertensive patients' behaviors in a positive way.

On the organizational level, structural changes as providing a peaceful environment to eat, creating awareness of preventable diseases by the use of social marketing techniques and an overall supportive environment must be considered to as measures to reduce the prevalence of hypertension among working Panamanian women. All these processes revolve around the empowerment of the patient. They suggest an interactive relationship which links the patient and the environment. Although various aspects of following lifestyle modifications have to do with voluntary behavioral change on the part of individuals, the findings of this study suggest that policy changes should be mandatory for best results.

Recommendation for Further Studies

This research has given pathway to new questions but has also highlighted some of the motivations and barriers in complying with lifestyle modification recommendations. Another study including the randomization of more work organizations would allow for better findings relative to the study research questions. Using mixed methods the same research questions could be answered and hence would allow for the evaluation of the consistency of results in both genders. Once final themes are recovered from the data, an instrument could be created for primary healthcare practitioners to evaluate in a systematic way the motivating and barrier factors for hypertension management. It would be valuable to assess the type of recommendations that are given to patients once they are diagnosed and how following these guidelines is assessed during follow up clinical consultations. Given the findings of this study, it might be necessary to integrate the physicians of the occupational program in future studies of hypertensive patients. This could allow for the evaluation of the specific recommendations that are given to the patients, the amount of time invested in lifestyle counseling, and increasing the sample size of participants to answer questions similar to the ones included in this study. Finally, with a rigorous quantitative study the findings of a study similar to this one could be triangulated to enable the implementation of a program consisting of patients' needs assessments. Subsequent valuations will allow for the establishment of the effectiveness of the theory of reinforcement proposed at the end of this study.

Finally, a population evaluation would be one way to gain the perspective of the people of the Republic of Panama on whether or not they actually support a comprehensive health program. Such an evaluation should include all or most of the following variables: the availability for healthy foods, incomes, access to healthy versus unhealthy foods, the evaluation of present laws regulating the caloric content of food and sodium information in preserved foods and foods bought at restaurants, and access to

an environment promoting physical exercise. Additional variables could be added to the evaluation tools as themes emerge from field surveys.

References Cited

- Adeyi, O., Smith, O., & Robles, S. (2007). *Public policy and the challenge of chronic non-communicable diseases*. Washington, DC: World Bank.
- Aldana, S., Greenlaw, R., Diehl, H. A., Englert, H., & Jackson, R. (2002). Impact of the coronary health improvement project (CHIP) on several employee populations. *Journal of Occupational and Environmental Medicine, 44*, 831-9. doi:10.1097/01.jom.0000031924.77204.83
- Asaria, P., Chisholm, D., Mathers, C., Ezzati, M., & Beaglehole, R. (2007). Chronic disease prevention: Health effects and financial costs of strategies to reduce salt intake and control tobacco use. *The Lancet, 370*, 2044-53. doi:10.1016/s0140-6736(07)61698-5
- Ashead, S. (1991). *Salt and Civilization*. Hampshire: Palgrave Macmillan.
- Ballou-Nelson, P. (2012). A synthesized model of compliance bases on physician and patient reported barriers to hypertension guidelines. Retrieved from Pro Quest Digital Dissertation. (AAT 3494233)
- Banco Nacional de Panamá. (2011). Retrieved from https://www.banconal.com.pa/index.php?option=com_content&view=article&id=26&Itemid=6&lang=en
- Becker, M. H., Radius, S. M., Rosenstock, I. M., Drachman, R. H., Schuberth, K. C., & Teets, K. C. (1978). Compliance with medical regimen for asthma: a test of the health belief model. *Public Health Reports, 93*(3), 268-277.
- Beckers, M. H., & Maiman, L. A. (1975). Sociobehavioral determinants of compliance with health and medical care recommendations. *Medical Care, 13*(1), 10-24.
- Bloch, M. J., Armstrong, D. S., Dettling, L., Hardy, A., Caterino, K., & Barrie, S. (2006). Partners in lowering cholesterol: Comparison of multidisciplinary educational program, monetary incentives, or usual care in the treatment of dyslipidemia

identified among employees. *Journal of Occupational and Environmental Medicine*, 48(7), 675-81.

Bokhour, B. G., Cohn, E. S., Cortés, D. E., Solomon, J. L., Fix, G. M., Elwy, R. A., . . . Kressin, N. R. (2012). The role of patients' explanatory models and daily-lived experience in hypertension self-management. *Journal of General Internal Medicine*, 27(12), 1626-34. doi:10.1007/s11606-012-2141-2

Caja de Seguro Social. (2011). Planeación Estratégica [Strategic Plan]. *Volviendo a lo básico: El cambio para nuestra gente [Returning to the basics: The change for our people]*. Panama, Panama, Republic of Panama. Retrieved from <http://www.css.org.pa/>

Chan, S. C., & Chang, C. C. (2011). Attitude, social influence and self-efficacy among Chinese participants of chronic disease self-management program: A latent growth curve modeling study. *Rehabilitation Psychology*, 56(3), 191-99.

Chapman, L. S. (2004). Reducing obesity in work organizations. *American Journal of Health Promotion*, 19(1), 1-8.

Chobanian, A. V., Bakris, G. L., Black, H. R., Cushman, W. C., Green, L. A., Izzo, J. L., . . . Rocella, E. J. (2003). The seventh report of the Joint National Committee on prevention, detection, evaluation and treatment of high blood pressure. *Hypertension*, 42, 1207-1252. doi:10.1161/01.HYP.000010725149515.c2

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Los Angeles, CA: Sage.

Cortes, E. (2009, August 24). La crisis de la hemodiálisis. *La Prensa*. Retrieved from <http://mensual.prensa.com/mensual/contenido/2009/08/24/hoy/opinion/1896983.asp>

Corvin, J., Martinez, D., Alfonso, M., Callegas, L., Herrera, J., Panzano, P., . . . Gonzalez, J. (2010). Minor depression & chronic disease among Latinos: Translating research into practice. *Social Justice*. Denver: APHA 138 annual meeting & Expo. Retrieved from <http://apha.confex.com/apha/138am/webprogram/Paper230248.html>

Danei, G., Finucane, M. M., Lin, J. K., Singh, G. M., Paciorek, C. J., Cowan, M. J., . . . Ezzati, M. (2011). National, regional and global trends in systolic blood pressure since 1980: Systematic analysis of health examination surveys and

epidemiological studies with 786 country-years and 5.4 million participants. *Lancet*, 377(9765), 568-77.

De Freitas Agondi, R., Bueno Jayme Gallani, M. C., Cornélio, M. E., & Matheus Rodrigues, R. C. (2012). Analysis of actions plans and coping plans for reducing salt consumption among women with hypertension. *Revista Latino-Americana de Enfermagem*, 20(3), 486-94.

Elzen, H., Slaets, J. P., Snijders, T. A., & Steverink, N. (2007). Evaluation of the chronic disease self-management program (CDSMP) among chronically ill older people in the Netherlands. *Social Science & Medicine*, 64(9), 1832-41.

Fajardo, M. (2011, July 27). Hemodialysis patients relief in Veraguas. *La Estrella*. Retrieved from <http://www.laestrella.com.pa/online/impreso/2011/07/29/alivio-para-pacientes-de-hemodialisis-en-veraguas.asp>

Flick, U. (1998). *An introduction to Qualitative Research*. London, Thousand Oaks, New Delhi: SAGE Publications.

Friedman, M., Thoresen, C. E., Gill, J. J., Ulmer, D., Powel, L. H., Price, V. A., . . . Dixon, T. (1986). Alteration of type A behavior and its effect on cardiac recurrences in post myocardial infarction patients: Summary results of the recurrent prevention project. *American Heart Journal*, 112(4), 653-665.

Glaser, G. (1978). *Theoretical sensitivity: Advances in the methodology of grounded theory*. Mill Valley, CA: Sociology Press.

Greenwood, D. C., Muir, K. R., Packham, C. J., & Madeley, R. J. (1996). Coronary heart disease: A review of the role of psychosocial stress and social support. *Journal of Public Health*, 18(2), 221-231.

Hamer, M., & Steptoe, A. (2012). Cortisol responses to mental stress and incident hypertension in healthy men and women. *Journal of Clinical Endocrinology and Metabolism*, 97(1), 29-34.

Heidrich, F. E., & Bergman, J. J. (1984). Physician knowledge of sodium content of common foods. *Journal of Family Practice*, 14, 693-97.

Hernandez, R. A., Silva, H. B., Velasco, M. C., Pellegrini, F. D., Macchia, A. E., Escobedo, J. F., . . . Wilson, E. J. (2010). Hypertension in seven Latin American

cities: The cardiovascular risk factor multiple evaluation in Latin America (CARMELA) study. *Journal of Hypertension*, 28(1), 24-34.

Heymann, A., Liora, V., Zucker, I., Chodik, G., & Shalev, V. (2012). Perceptions of hypertension treatment among patients with and without diabetes. *BMC Family Practice*, 13(24).

Institute of Medicine of the National Academies. (2010). *Strategies to reduce sodium intake in the United States*. Washington, D.C.: The National Academies Press.

Instituto Nacional de Estadística y Censo. (2010). *XI Censo de Población y VII de Vivienda [Census of Population and Housing VII]*. Panama: Contraloría General de Panamá. Retrieved from <http://www.contraloria.gob.pa/INEC/publicacionescenso2010.aspx>

Instituto Nacional de Estadística y Censo. (2013). *Encuesta del uso del tiempo [Used time survey]*. Retrieved from http://www.contraloria.gob.pa/inec/publicaciones/Publicaciones.aspx?ID_SUBCATEGORIA=63&ID_PUBLICACION=515&ID_IDIOMA=1

Kearny, P. M., Whelton, M., Reynolds, K., Muntner, P., Whelton, P. K., & He, J. (2005). Global burden of hypertension: Analysis of worldwide data. *Lancet*, 365(9455), 217-23. doi:10.1016/S0140-6736(05)17741-1

Kirkendoll, K. D., Clark, P. C., Grossniklaus, D. A., Igho-Pemu, P., Mullis, R. M., & Dunbar, S. B. (2010). Metabolic syndrome in african americans: Views on making lifestyle changes. *Journal of Transcultural Nurses*, 21(2), 104-13.

Kollipara, U. K., Jaffer, O., Amin, A., Toto, K. H., Nelson, L. L., Schneider, R., . . . Drazner, M. H. (2008). Relation of lack of knowledge about dietary sodium to hospital readmission in patients with heart failure. *The American Journal of Cardiology*, 102(9), 1212-15.

Krueger, R., & Casey, M. (2000). *Focus Groups: A practical guide for applied research*. Thousands Oak, CA: Sage Publications.

Kurckartz, U. (2012). MAXQDA: The art of data analysis (Version 11.0) [Software]. Retrieved from <http://www.maxqda.com/>

- Lorig, K. R., Sobel, D. S., Ritter, P. L., Laurent, D., & Hobbs, M. (2001). Effect of a self-management program on patients with chronic disease. *Effective Clinical Practice, 4*(6), 256-62.
- Lorig, K. R., Sobel, D. S., Stewart, A. L., Brown, B. W., Bandura, A., Ritter, P., . . . Holman, H. R. (1999). Evidence suggesting that a chronic disease self-management program can improve health status while reducing hospitalizations. *Medical Care, 37*(1), 5-14.
- Mancia, G., De Backer, G., Dominiczak, A., Cifkova, R., Fagard, R., Germano, G., . . . Zanchetti, A. (2007). ESG - ESC Guidelines for the management of arterial hypertension. *Blood Pressure, 16*, 135-232.
- Mansyur, C. L., Pavlik, V. N., Hyman, D. J., Taylor, W. C., & Goodrick, K. G. (2013). Self-efficacy and barriers to multiple behavior change in low-income African Americans with hypertension. *Journal of Behavioral Medicine, 36*, 75-85. doi:10.1007/s10865-012-9403-7
- Mc Donald, A., Motta, J., Roa, R., Fontes, F., Bastista, I., Lay de Ureña, L., & Mann Yi, M. (2010). *Prevalencia de factores de riesgo asociados a enfermedad cardiovascular (PREFEC) [Prevalence of risk factors associated to cardiovascular disease]*. Panama: Instituto Conmemorativo Gorgas de Estudios de la Salud.
- McCullough, M. L., Chevaus, K., Jacksong, L., Preston, M., Martinez, G., Schmitz, H. H., . . . Hollenberg, N. (2006). Hypertension, the Kuna, and the epidemiology of flavanols. *Journal of Cardiovascular Pharmacology, 46*(2), 103-9.
- Milder, I. E., Blokstra, A., de Groot, J., van Dulmen, S., & Bemelmans, W. (2008). Lifestyle counseling in hypertension-related visits - analysis of video-taped general practice visits. *BMC Family Practice, 9*(58). doi: 10.1186/1471-2296-9-58
- Millet, C., Laverty, A. A., Styliano, N., Bibblins-Domingo, K., & Pape, U. J. (2012). Impacts of a national strategy to reduce population salt intake in England: Serial cross sectional study. *PLoS One, 7*(1). doi:10.1371/journal.pone.0029836
- Ministerio de Salud República de Panamá & Organización Panamericana de la Salud. (2012). Informe de avances de Panamá, brechas, temas y problemas emergentes y lineamientos estratégicos para la acción en salud [Progress report of Panama, gaps, issues and problems emerging and strategic guidelines for health action]. *Salud en el desarrollo sostenible: Protección y fomento de la salud humana [Health in a sustainable development: Protecting and promoting human health]*. Rio de Janeiro: United Nations Conference.

- Ministerio de Salud República de Panamá. (2010). *Boletín estadístico [Statistical yearbook]*. Panama: Ministerio de Salud República de Panamá. Retrieved from http://www.minsa.gob.pa/minsa/tl_files/documents/informacion_salud/estadisticas_salud/boletines/anuario2010.pdf
- Moczygemba, L. R., Kennedy, A. K., Marks, S. A., Goode, J. V., & Matzke, G. R. (2012). A qualitative study of perceptions and barriers to therapeutic lifestyle changes among homeless hypertensive patients. *Research in Social & Administrative Pharmacy*. doi:10.1016/j.sapharm.2012.05.007
- Montero, N. (2013, May 15). Jefa de Sección de Trabajo Social del Banco Nacional de Panamá (Chief of Social Work of the National Bank of Panama). (L. Chang, Interviewer)
- National Cancer Institute. (2005). *Theory at a glance. A guide for health promotion practice*. Retrieved from <http://www.cancer.gov/cancertopics/cancerlibrary/theory.pdf>
- NCD Alliance. (2011). *Non-communicable diseases: A priority for women's health and development*. NCD Alliance. Retrieved from [Retrieved from http://www.who.int/pmnch/topics/maternal/2011_women_ncd_report.pdf.pdf](http://www.who.int/pmnch/topics/maternal/2011_women_ncd_report.pdf.pdf)
- Nilvarangkul, K., Srithongchai, N., Saensom, D., Smith, J. F., Supornpan, A., & Tumong, C. (2012). Action research to strengthen women weavers' self-care in North-East Thailand. *Public Health Nursing*, 30(3), 213-220.
- Organización Panamericana de la Salud. (2007). *Salud en la Americas*. Washington: OPS. Retrieved from <http://www.paho.org/hia/vol2paises.html>.
- Organización Panamericana de la Salud. (2011). *Enfermedades no transmisibles en las Américas: Construyamos un futuro más saludable [Non-communicable diseases in the Americas: Building a healthier future]*. Washington: OPS. Retrieved from http://new.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=14833&Itemid
- Organizacion Panamericana de la Salud. (2011). *Prioridades para la salud cardiovascular en las Americas: Mensaje claves para los decisores [Priorities for Cardiovascular Health in the Americas: Key messages for decision maker]*. (P. Orduñez-García, & C. Campillo-Artero, Eds.) Washington, D.C.
- Organizacion Panamericana de la Salud. (2012). *Prioridades para la salud cardiovascular en las Americas: Mensaje claves para los decisores [Priorities for*

Cardiovascular Health in the Americas: Key messages for decision maker. (P. Orduñez-García, & C. Campillo-Artero, Eds.) Washington, D.C.

Organización Panamericana de la Salud, Ministerio de Salud de República de Panamá. (2009). *Guía integral para el manejo de la hipertensión [Guide for the comprehensive care of people with hypertension]*. Panama: Organización Panamericana de la Salud. Retrieved from https://new.paho.org/pan/index2.php?option=com_docman&task=doc_view&gid=298&Itemid=224

Orth-Gomér, K., Schneiderman, N., Wang, H.-X., Walldin, C., Blom, M., & Jernberg, T. (2009). Stress reduction prolongs life in women with coronary disease. *Circulation Cardiovascular Quality and Outcomes*, 2, 25-32. doi:10.1161/CIRCOUTCOMES.108.812859

Patton, M. Q. (2002). *Qualitative research and evaluation*. Thousand Oaks, CA: Sage.

Pegus, C., Bazarre, T. L., Brown, J. S., & Menzin, J. (2002). Effect of the Heart At Work program on awareness of risks factors, self-efficacy and health behaviors. *Journal of Occupational and Environmental Medicine*, 44(3), 228-36.

Pereira, M., Lunet, N., Azevedo, A., & Barrios, H. (2009). Differences in prevalence, awareness, treatment and control of hypertension between developing and developed countries. *Journal of Hypertension*, 27(5), 963-75.

Prieto-Barreiro, E. (2012, July 25). El precio de una hemodiálisis. *La Prensa*. Retrieved from <http://www.prensa.com/impreso/panorama/el-precio-de-una-hemodialisis/50007>

Rose, A. J., Berlowitz, D. R., Orner, M. B., & Kressin, N. R. (2007). Understanding uncontrolled hypertension: Is it the patient or the provider. *The Journal fo Clinical Hypertension*, 9(12).

Salkind, N. J. (2010). *Encyclopedia of research design*. Thousand Oak, CA: Sage.

Sánchez, G., Peña, L., Varea, S., Mogrovejo, P., Goetschel, M. L., Montero-Campos, M. d., . . . Blanco-Metzler, A. (2012). Conocimientos, percepciones y comportamientos relacionados con el consumo de sal, la salud y el etiquetado nutricional en Argentina, Costa Rica y Ecuador. *Revista Panamericana de Salud Publica*, 32(4), 259-64.

- Sanz-Valero, J., Sebastián-Ponce, M. I., & Wanden-Berghe, C. (2012). Intervenciones para reducir el consumo de sal a través del etiquetado [Interventions to reduce salt intake through labelling]. *Revista Panamericana de Salud Publica*, 31(4), 332-7.
- Sheahan, S. L., & Fields, B. (2008). Sodium dietary restriction, knowledge, beliefs, and decision-making behavior of older females. *Journal of the American Academy of Nurse Practitioners*, 20, 217-24.
- Solis, S. S., & Tejeira, K. E. (2011). Contenido de sodio en alimentos procesados que tienen etiquetado nutricional y conocimiento sobre sodio de pacientes hipertensos [Sodium content in processed food with nutritional labelling and sodium knowledge of hypertensive patients]. (*Unpublished thesis*). Universidad de Panamá, República de Panamá.
- Spence, J. D., Barnett, P. A., Linden, W., Ramsden, V., & Taenzer, P. (1999). Lifestyle modification to prevent and control hypertension. Recommendation on stress management. *Canadian Medical Association Journal*, 160(9), 46-50.
- Taylor, K. D., Adedoku, A., Awobusuyi, O., Adeniran, P., Elochukwu, O., & Ogedegbe, G. (2012). Explanatory models of hypertension among Nigerian patients at a University Teaching Hospital. *Ethnicity & Health*, 17(6), 615-29.
- Tomioka, M., Braun, K., Compton, M., & Tanoue, I. (2012). Adapting Stanford's chronic disease self-management program to Hawaii's multicultural population. *The Gerontologist*, 52(1), 121-32.
- Vannegoor, M. (2009). Salt restriction and practical aspects to improve compliance. *Journal of Renal Nutrition*, 19, 63-68.
- Varekamp, I., Heutink, A., Landman, S., Koning, C. E., de Vries, G., & van Dijk, F. J. (2009). Facilitating empowerment in employees with chronic disease: Qualitative analysis of the process of change. *Journal of Occupational Rehabilitation*, 19, 398-408.
- Vrijens, B., Vincze, G., Kristanto, P., Urquhart, J., & Burnier, M. (2008). Adherence to prescribed antihypertensive drug treatments: longitudinal study of electronically compiled dosing histories. *BMJ*, 336, 1114-7.
- Wang, H.-X., Leineweber, C., Kirkeeide, R., Svane, B., Schenck-Gustafsson, K., Theorell, T., & Orth-Gomér, K. (2007). Psychosocial stress and atherosclerosis: Family and work stress accelerate progression of coronary disease in women.

The Stockholm female coronary angiography study. *Journal of Internal Medicine*, 261, 245-254.

World Bank. (2012a). *Women play key role in economic gains in Latin America and the Caribbean*. Washington: The World Bank. Retrieved from <http://www.worldbank.org/en/news/2012/08/29/women-play-key-role-in-economic-gains-in-latin-american-and-caribbean>

World Bank. (2012b). *The effect of women's economic power in Latin America and the Caribbean*. Washington: The World Bank. Retrieved from <http://www.worldbank.org/content/dam/Worldbank/document/PLBSummer12latest.pdf>

World Health Organization. (2009). *Global Health risks: Mortality and burden of disease attributable to selected major risks*. Geneva: WHO. Retrieved from http://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf

World Health Organization. (2011). *Top 10 causes of death*. WHO. Retrieved from <http://www.who.int/mediacentre/factsheets/fs310/en/index.html>

World Health Organization. (2012). *Guidelines: Sodium intake for adults and children*. Geneva: World Health Organization (WHO).

World Health Organization, FAO. (2003). *Diet, nutrition and the prevention of chronic diseases: Report of a Joint WHO/FAO expert consultation*. Geneva: WHO technical report series.

Wright, J. A., & Cavanaugh, K. L. (2010). Dietary sodium in chronic kidney disease: A comprehensive approach. *Seminars in Dialysis*, 23(4).

Appendix A: Invitation Letter



Hi, my name is **Lisette Raquel Chang** and I'm a student at the University of South Florida. I'm currently doing research to complete my MSPH degree. **I would like to invite you to participate** in my research which has the goal of exploring the daily experiences of **women** who live with **hypertension** or high blood pressure.

I only need to do one interview with you, that will last approximately 45 minutes; and during this time I will provide you with lunch. Your collaboration will be of benefit by understanding the type of interventions that woman like you require managing high blood pressure. Your participation is **voluntary** and **confidential**; it does not imply any cost for you. This study (USF IRB 10513) is not funded by any organization and its' outcomes are purely academic. This study does not generate any income for me. Your collaboration is invaluable.

To participate, you only need to be between the ages of 30 to 59 years old, have a one year diagnose of hypertension, take at least one prescribed drug and work at the National Bank of Panama.

I hope to meet you soon,

If you want to participate, you can reach me at:

Lisette Raquel Chang

Cellphone: (507) 6731-1595

E-mail: lissettechang@mail.usf.edu



Appendix B: Interview Guide

Perspectives of living with hypertension

1. What do you understand by high blood pressure?
2. How long have you been diagnosed with high blood pressure?
3. What is the first thing that comes to your mind when I say high blood pressure?
4. I want you to remember the moment when you were told you had high blood pressure. What were your thoughts?
5. Currently, What effect has high blood pressure had in your daily life?
6. What other disease do you have?

Knowledge on lifestyle modifications

7. What would you tell a friend, a neighbor or a family member if they asked you about how to deal with high blood pressure?
How did you get to know these recommendations?
8. What are the limitations to following these recommendations you have just suggested?
9. What could a person do to overcome these limitations?

Salt intake

10. When somebody suggests to you that you need to lower your salt intake, what do you do?
11. What food products (liquids or solids) do you know to have salt?
How did you obtain this information?
Do you know the recommended value of daily salt intake for a patient with high blood pressure?
12. What are the possible limitations to control salt intake?
What can you do to overcome these limitations?
What would help you to lower you salt intake?
13. Who has advised you about salt intake?
In general, Do you cook or do you buy your food?
How do you control the amount of salt you take when you cook or buy already made food?

Perceived Risks

14. What type of symptoms can make a person believe he/she has high blood pressure at the moment?
15. What are some of the health complications for a patient with uncontrolled high blood pressure?

Appendix C: Institutional Review Board Letter of Approval



DIVISION OF RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813) 974-5618

January 7, 2013

Lisette Chang
Health Policy and Management
13201 Bruce B. Downs Blvd., MDC 56
Tampa, FL 33612

RE: **Expedited Approval for Initial Review**
IRB#: Pro00010513
Title: Patients' perspectives in following hypertensive guidelines on sodium intake and lifestyle modifications in Panama

Dear Dr. Chang:

On 1/6/2013 the Institutional Review Board (IRB) reviewed and **APPROVED** the above referenced protocol. Please note that your approval for this study will expire on 1/6/2014.

Per HRPP Policy 304, please be advised data collection cannot begin until the IRB receives and approves the letter of support from the local ethics committee, which must be submitted as an amendment.

Approved Items:
Protocol Document:
[Proposal](#)

Consent Documents:
[Informed Consent.pdf](#)
[Spanish IC.pdf](#)

Please use only the official, IRB- stamped consent document(s) found under the "Attachment Tab" in the recruitment of participants. Please note that these documents are only valid during the approval period indicated on the stamped document.

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR 56.110. The research proposed in this study is categorized under the following expedited review

Appendix C: (Continued)

categories:

(6) Collection of data from voice, video, digital, or image recordings made for research purposes.

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval by an amendment.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,



John A. Schinka, Ph.D., Chairperson
USF Institutional Review Board

Appendix D: Institutional Review Board Amendment Letter of Approval



RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813) 974-7091

3/5/2013

Lissette Chang, M.D.
Health Policy and Management
13201 Bruce B. Downs Blvd. MDC 56
Tampa, FL 33612

RE: **Expedited Approval for Amendment**

IRB#: Ame1_Pro00010513

Title: Patients' perspectives in following hypertensive guidelines on sodium intake and lifestyle modifications in Panama

Dear Dr. Chang:

On 3/4/2013, the Institutional Review Board (IRB) reviewed and **APPROVED** your Amendment. The submitted request has been approved for the following:

1. Letter of approval provided from the Ethics Committee of Research of the Punta Pacifica Hospital. The Ethics Committee has been accredited by SENACYT to approve research for an organization like the National Bank of Panama which does not have its own IRB.
2. Revised English and Spanish consent forms, v2 dated 2/26/13.

Consent Document(s)*:

[English Informed Consent.pdf](#)

[Spanish Informed Consent.pdf](#)

*Please use only the official IRB stamped informed consent/assent document(s) found under the "Attachments" tab on the main study's workspace. Please note, these consent/assent document(s) are only valid during the approval period indicated at the top of the form(s) and replace previously approved versions.

Appendix D: (Continued)

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

A handwritten signature in black ink that reads "John A. Schinka, Ph.D." The signature is written in a cursive style with a large initial 'J'.

John Schinka, Ph.D., Chairperson
USF Institutional Review Board