

CALIFORNIA STATE UNIVERSITY SAN MARCOS

PROJECT SIGNATURE PAGE

PROJECT SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE

MASTER OF SCIENCE

IN NURSING

PROJECT TITLE: A Culturally-based Intervention to Decrease Blood Pressure in

Filipino Clients Aged 40-69 years

An Evidence-Based Practice Project Grant Proposal

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DATE OF SUCCESSFUL DEFENSE: 12/5/18

THE PROJECT HAS BEEN ACCEPTED BY THE PROJECT COMMITTEE IN  
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF  
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HYPERTENSION AMONG MIDDLE-AGED FILIPINO- AMERICANS

A Culturally-based Intervention to Decrease Blood Pressure in

Filipino Clients Aged 40-69 years

An Evidence-Based Practice Project Grant Proposal

To be presented to the faculty of the School of Nursing

California State University, San Marcos

To be submitted in partial satisfaction of

the requirements for the degree of

MASTER SCIENCE

in

Nursing

Family Nurse Practitioner Track

by

Randy M. Reyes

FALL 2018

## Abstract

Hypertension affects a significant and growing number of Americans as the baby boomer population ages. The Filipino-American population is one of the fastest growing populations in the United States and has demonstrated an increased prevalence of hypertension in recent years. There are few studies that investigate hypertension in this group. The proposed study will investigate the effectiveness of a culturally-tailored educational intervention targeting lifestyle factors by utilizing the 2008 National Heart Lung Blood Institute Healthy Heart Healthy Family manual for the Filipino Community.

*Keywords:* Filipino, Filipino-American, hypertension, high blood pressure, knowledge, knowledge level, Pender's Health Promotion Model, and cultural practices

## ACKNOWLEDGEMENTS

This project could not have been done without the guidance of my chairperson Dr. Linnea Axman DrPH, MSN, FNP-BC, FAANP and committee member Dr. Michelle Alfe DNP, MSN, FNP, CNS-PH, I thank you both for helping me through the entirety of formulating this project. Thank you to everyone who has led the way in laying the groundwork and inspiring myself and others to study the health and well-being of Filipinos. My parents and grandparents whom have all been supportive in every way to help me attain my goals, I am forever grateful. All family, friends, teachers, peers past and present who have fostered my learning in some shape or form throughout the years, local and afar, I thank you all. Mabuhay!

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# HYPERTENSION AMONG MIDDLE-AGED FILIPINO- AMERICANS

## CHAPTER ONE: INTRODUCTION

### Background and Significance

High blood pressure also known as hypertension (HTN) is a common disease in which blood flows through blood vessels (arteries) at higher than normal pressures (National Institute of Health 2016). An individual who is diagnosed with HTN is at an increased risk for heart disease, a leading cause of death in the United States (US) (Yoon, Fryar, & Carroll, 2015). National spending associated with HTN in the US increased between 2000-2013 from \$58.7 billion to \$109.1 billion (Zhang, Wang, Zhang, Fang, & Ayala, 2017). This increase in medical expenditure for HTN can be attributed to the rising number of patients treated for HTN. The prevalence of HTN in the US increased during this same time period from 23.5% to 34.5% in all age groups, for men, women and all racial and ethnic groups (Zhang, Wang, Zhang, Fang, & Ayala, 2017). Given the increased prevalence and costs associated with HTN health officials have set clearly defined goals to address this pressing health issue as outlined in the Healthy People 2020 objectives. The objectives include a reduction of illness in individuals, communities and to eliminate health disparities (Office of Disease Prevention and Health Promotion, 2014). Aligned with Healthy People 2020 objectives, an executive order by former President Barack Obama in 2009 called to develop more strategies to improve the health and well-being of Asian Americans, Native Hawaiians, and Pacific Islanders (Obama, 2009). In addition, to help identify health disparities ongoing data collection and further research on health indicators are also included in the executive order.

This has all led to few studies focusing on the increased prevalence of HTN in the Filipino American (FA) population. Among other Asian-American subgroups, Filipino-

American (FA) adults were more likely to be diagnosed with hypertension, 27% or nearly one-third of the FA population was diagnosed (Barnes, Adams, & Powell-Griner, 2008). This statistic is pertinent to healthcare practitioners, in particular, those working in the state of California due to the highest percentage, estimated 57% in 2017, of Filipinos in the United States living in this state (U.S. Census Bureau, 2018). This number is increasing according to the US Census Bureau 2010 (Hoeffel, Rastogi, & Ki, 2012). Given this large population of FAs residing in the state of California, it would be beneficial to community health workers (CHW), patients, families, and community to be informed of this health issue.

Hypertension in the FA is attributed to multiple factors, which include health behaviors, socio-demographic differences, and acculturation characteristics. A major health behavior found to be a significant predictor of hypertension in FAs is salt consumption. “Compared to FAs who never add salt, those who add salt to every meal or one to seven times per week had a six to eight higher odds of being hypertensive” according to Ma et al. (2017). In addition, physical inactivity is also associated with hypertension status in this population. FAs who are physically active are 70% less likely to be hypertensive than those who are active (Ma, et al., 2017). These two key factors, diet, and physical activity have been identified by focus groups in a study by Dela Cruz and Galang (2008). The four focus groups in the study acknowledged that the typical Filipino diet, which has food items high in salt and fat, contributes to HTN. Participants found it difficult to modify Filipino cuisine and cooking style in order to prepare more healthier options. Notable quotes from focus group participants further explain this notion “Filipino cooking uses too much salt like *patis*, *bagoong*, and soy sauce ... we

grew up with this taste ... we crave for these ingredients” and “Most of our dishes are fried, like fried lumpia (egg roll)...” (Dela Cruz & Galang, 2008). Regarding the lack of exercise, all focus groups also acknowledged this as a major cause of HTN. Lack of time is a primary reason identified by participants due to responsibilities such as preparing meals for their kids, tiredness from work duties, changes in lifestyle wherein the Philippines maids are commonplace for some and are able to help with such duties. Also, walkability of the community in the Philippines versus the US is a factor one participant acknowledged in comparison to the common practice of driving in cars in the US (Dela Cruz & Galang, 2008). This study identifying focus groups will be discussed further in the literature review section.

A cross-sectional analysis of survey data from health screenings published by Ursua et al. in 2013 identified the awareness, treatment, and control of hypertension among Filipino immigrants. The study identified from its sample ( $n=994$ ) those who are hypertensive ( $n=566$ ) and those who are not ( $n=428$ ). Additionally, 72.1% were aware of their hypertension ( $n=408$ ) and 27.9% were not aware ( $n=158$ ). Of those who were aware of their hypertension and taking medication ( $n=320$ ), they found that only 38.4% ( $n=123$ ) had their condition under control versus 61.6% ( $n=197$ ) who had uncontrolled hypertension (Ursua R. A., et al., 2013). The study concluded that of their studied sample there was a high prevalence and poor control of hypertension. Researchers noted that prevalent cardiovascular risk factors in this population suggest a gap in knowledge regarding lifestyle factors such as diet and physical activity (Ursua R. A., et al., 2013).

## **Theoretical Framework**

This research study is based on the Health Promotion Model (HPM). This model has been used to assist nurses in understanding the major determinants of health behaviors as a basis for behavioral counseling to promote healthy lifestyles (Pender, 2011). This model will be explained further in “Literature Review,” under the section, “Theoretical framework”.

## **Problem Statement**

Filipino Americans experience disproportionately high prevalence rates of cardiovascular disease and its risk factors (Barnes, Adams, & Powell-Griner, 2008). One study has shown the largest growing population from 2000- 2010 was the Asian alone-or-in-any-combination population totaling 3.4 million and the third largest Asian group in the US is Filipino (Hoeffel, Rastogi, & Ki, 2012) (U.S. Census Bureau, 2018). Growing numbers in this population, an increased prevalence and increasing medical expenditures related to HTN are reasons to investigate this problem to prevent further reduce health disparity and mortality.

In 2012 38.3 million men and 41.7 million women were living with HTN in the US alone (Mozaffarian, et al., 2016). In accordance with Healthy People 2020 more research is being done to investigate health disparities (Office of Disease Prevention and Health Promotion, 2014). A 3-year study (total participants  $n= 208,985$ ) conducted in a large ambulatory care setting in northern California identified HTN prevalence among the following subgroups: Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Mexicans, non-Hispanic Blacks (NHBs), and non-Hispanic Whites (NHWs). Filipino men had an HTN prevalence rate of 59.9% and Filipino women had a prevalence rate of

53.2% according to the study. In comparison with NHB male and NHB females whom historically have had the highest prevalence rates among subgroups, Filipino men were practically equal to NHB males and Filipino women were only a few percentage points below NHB females at 59.3% and 59.1% respectively (Zhao, et al., 2015). Limited research concerning the Filipino population and increased hypertension prevalence suggests the need to fill gaps in knowledge to better identify effective, culturally tailored interventions.

### **Purpose of the Research**

The purpose of this study is to evaluate the effectiveness of an intervention designed to lower systolic and diastolic blood pressure among FAs aged 40-years of age that participate in an educational intervention at a community outreach facility in San Diego, California. This BP reduction will occur as a result of an increase in knowledge about hypertension prevention, care self-care and treatment.

### **Major Aims**

The primary aim of this study is to reduce systolic and diastolic blood pressure in FAs ages 40-69. Identifying gaps in knowledge, increasing knowledge surrounding hypertension and its risk factors, introducing information on specific cultural practices and provide teaching points that nurses can utilize in their respective practices are additional aims of this study.

A pilot study in the NY/NJ area conducted by Ursua R. A., et al. (2014) found that a culturally tailored intervention for HTN in the FA population was feasible and had the potential to be effective. Another study by Ma et al. (2017), which surveyed 200 FAs in the Pennsylvania and New Jersey area, illustrates the link between hypertension and

behavioral factors. The study identifies a need for a more focused intervention in the FA population in order to help improve lifestyle factors such as a reduction in salt intake and increase physical activity. In summary, building on studies such as the one by Ursua et al. (2014) and Ma et al. (2017) can be beneficial in helping fill gaps in research between hypertension and the FA population.

### **Clinical Question**

The clinical question: “Is a culturally based educational intervention designed to reduce SBP, DBP and to increase knowledge about hypertension in FAs aged 40-69 years clinically and statistically effective as evidenced by a reduction in SBP/DBP and an increase in knowledge of hypertension and its related risk factors?”

## **CHAPTER TWO: LITERATURE REVIEW**

This major section reviews the current literature involving Filipino-Americans and hypertension. Cultural factors and the educational intervention will be discussed in length. The databases used to search the literature include CINAHL, PubMed, and Google Scholar. Search terms used for the purposes of this literature search include Filipino, Filipino-American, hypertension, high blood pressure, knowledge, knowledge level, health promotion, and cultural practices. Twenty (20) abstracts were reviewed for inclusion and of that number, 11 research articles were included in this study. The researcher focused on research articles that are related to hypertension in FAs.

### **Cultural Factors**

Few studies exist researching the FA population and health behaviors associated with HTN. A health needs assessment of 200 FAs in the greater Philadelphia region found participants to have an increased prevalence of HTN in which many participants

identified diet as a major factor (Bhimla, et al., 2017). In this sample, almost all participants did not meet the recommended daily intake of fruits and vegetables of at least 4 servings per day with many reporting a diet of both traditional Filipino and typical Western eating patterns (Bhimla, et al., 2017). In addition, adding salt, physical inactivity, and old age are strongly associated factors contributing to HTN in the FA population (Ma, et al., 2017).

This is exemplified in the study mentioned earlier by Dela Cruz & Galang (2008) that utilizes explanatory models (EM) of FAs diagnosed with HTN. Using four focus groups the study investigates the beliefs, practices, and perceptions surrounding HTN. It was found that the EMs identified by the focus groups are in line with the biomedical model in relation to causes, consequences, and treatment of HTN (Dela Cruz & Galang, 2008). The four focus groups identified four contributing factors to hypertension: dietary practices, lack of exercise, stress and to a lesser extent smoking, alcohol use and hereditary. In regards to dietary practices, participants acknowledged common Filipino dishes to be high in fat and salt. Furthermore, cultural practices surrounding food are observed among FAs such as food is a central focus at parties, encouragement to participate in shared meals, and declining to partake in a meal may be seen as rude to the host (Ursua R. A., et al., 2014). These common cultural practices may contribute to more frequent or larger meals than one had originally planned. In addition to identifying common cultural practices use of traditional folk remedies and practitioners who practice these could be vital in health promotion and control of HTN in FAs. The conclusion of the study by Dela Cruz and Galang (2008) suggests knowledge as the first step to prevention, self-care, and treatment of HTN.

Knowledge of HTN will be the first step in modifying health behaviors associated with HTN. Moving forward an effective intervention will require a firm understanding of FAs' health behaviors and their understanding of HTN and its risk factors (Dalusung-Angosta, 2013). Studies have shown health practitioners who are aware of cultural differences are better equipped to break down potential barriers between their patients and a positive healthcare experience. This acquired knowledge can lead to more strategic interventions aimed at treating HTN (Wooksoo & Keefe, 2010).

### **Intervention**

A pilot study utilizing a single-arm community health worker (CHW) intervention published in 2014 by Ursua et al. further investigated hypertension management among Filipino-Americans in New York using a pre-post design. This was the first study conducted using a culturally tailored health worker intervention for hypertensive FAs (Ursua R. A., et al., 2014). The study intervention comprised of four 90-minute workshop sessions delivered monthly by CHWs utilizing a condensed version of the National Institute of Health (NIH) National Heart, Lung, and Blood Institute (NHLBI) Healthy Heart, Healthy Family (HHHF) curriculum, designed for CHWs to be used in the FA community. The researchers found their intervention to have a positive impact in the studied population. Positive, significant changes in systolic blood pressure (SBP), diastolic blood pressure (DBP), weight, body mass index (BMI), knowledge related to cardiovascular disease, nutrition, and self-efficacy were made related to diet and exercise (Ursua R. A., et al., 2014). Most importantly it was found that the intervention was feasible and effective in this population. Participants identified the CHWs shared culture and language as key factors to building an effective rapport during the study but were

most affected by demonstrations of genuine concern for their health and well-being (Ursua R. A., et al., 2014).

Based on these findings the HTN educational intervention for the proposed study will use a similar framework that will include four weekly 90-minute workshops. Each workshop will focus on HTN prevention, self-care, and treatment. In addition to the weekly workshop, one in-person visit and two phone calls from a CHW will be included in the intervention. A CHW's role will include helping improve access to healthcare services such as linking patient with a primary care provider and to improve adherence to health recommendations. CHWs usually share ethnicity, language, socioeconomic status, and life experiences with the community members they serve, which may help in establishing rapport with participants (National Heart Lung and Blood Institute, n.d.).

The weekly workshops will form the basis of the educational intervention. The four workshops will cover and be ordered as 1) heart disease and heart attack 2) control of cholesterol and blood sugar 3) physical activity, weight management, and BP control; and 4) nutrition and cigarette smoking (Ursua R. A., et al., 2018). Each workshop will highlight suggested lifestyle modifications taken from NHLBI HHHF manual (National Institutes of Health: National Heart Lung and Blood Institute, 2008). To complement each workshop a guest lecturer will be included to address each workshop's corresponding topic. Lecturers will be familiar with traditional Filipino culture and values and will include a nurse practitioner, registered dietitian, local chef, physical therapist and a recreational therapist. The role of the guest lecturers will be to provide an activity that is culturally tailored to assist participants in the application of positive health behaviors. For example, physical exercise and stress management techniques will be

taught by a physical therapist and a recreational therapist respectively during workshop 3 “physical activity, weight management, and BP control”. Healthy cooking methods and ingredient substitution in common Filipino dishes will be led by a local chef for the “nutrition” portion of week four’s workshop. A registered dietitian will cover properly reading food labels and healthier foods and snacks for workshop 2 “control of cholesterol and blood sugar.” A randomized control trial using a CHW led intervention aimed to improve blood pressure among FAs with HTN showed improvements in participants’ SBP and DBP readings and helped form this intervention (Ursua R. A., et al., 2018).

### **Major Variables Defined**

**Hypertension.** According to the (2016) Update of Heart Disease and Stroke Statistics: A report from the American Heart Association (AHA), three key foci of the report include cardiovascular disease prevention and promotion, prioritization of health behaviors (healthy diet pattern, appropriate energy intake, physical activity, nonsmoking), and targeting those individuals at greatest CVD risk (Mozaffarian, et al., 2016). Hypertension is a major risk factor of cardiovascular disease; its prevalence and ability to properly control it is a major issue in America today (Mozaffarian, et al., 2016). As mentioned earlier, hypertension is defined as blood flowing through arteries at higher than normal pressures (National Institute of Health National Heart, Lung, and Blood Institute. , 2016).

**Educational Intervention.** The Educational Intervention will include reviewing the basics of hypertension, nutrition, physical activity, tobacco and alcohol consumption, hereditary factors, and stress reduction techniques. The intervention will identify health behaviors, which will improve and prevent hypertension including monitoring and

maintaining healthy dietary practices by reducing sodium intake and making healthier food choices. Most importantly, the intervention will be culturally-tailored using the NIH/NHLBI cardiovascular disease prevention curriculum titled *Healthy Heart, Healthy Family* (HHHF) which targets the FA population (National Institutes of Health: National Heart Lung and Blood Institute, 2008). HHHF utilizes role-playing from a grandmother's perspective (Lola) using "Lola's Life Lessons". It tells the story of a Filipino family trying to adopt healthier lifestyles incorporating Filipino culture, values and proverbs.

It has been well studied that diets comprised of fruits, nuts/seeds, whole grains, vegetables, and seafood combined with a reduction in salt can contribute to improved health (Mozaffarian, et al., 2016). Physical activity will be emphasized for improved health outcomes following the suggestion of 150 minutes per week (Mozaffarian, et al., 2016). Suggestions such as walks around the neighborhood, gardening, resistance exercises, and low-impact sports will be covered. Tobacco awareness will be reviewed identifying it as a leading cause of disability and death (Mozaffarian, et al., 2016). Abstinence and or limited alcohol consumption to 1-2 drinks per day will be reviewed. Hereditary factors such as a previous family history of cardiovascular disease and diabetes will be discussed and how they will lead to hypertension if no health-seeking behaviors are taken. Stress reduction techniques such as healthy conversation, stretching, and volunteering will also be added to the intervention. The educational intervention will use examples of common Filipino dishes. Healthier substitutions in these dishes will be identified. Key contributions from a registered dietitian (RD) who is familiar with Filipino cuisine will be crucial in implementing this portion of the intervention (Y.Nangpi, personal communication, May 1, 2018).

**Knowledge** is defined as the fact or condition of knowing something with familiarity gained through experience or association, the fact or condition of being aware of something (Knowledge, 2018). Knowledge will be measured using the Hypertension Knowledge- Level Scale (HK-LS) (Erkoc, Isikli, Metinas, & Kalyoncu, 2012).

### **Demographic Variables**

The following demographic variables will be used to describe the sample. They will not be included in any data analysis.

**Age.** Age refers to the chronological age of the participant. Gender is defined as male, female, male to female (MTF), or female to male (FTM). Recent data shows that men are more likely than woman to have HTN until 45 years of age. Between the ages of 45-64 years of age are similar percentages of HTN between men and women but after this range, women have a higher percentage (Mozaffarian, et al., 2016).

**Marital status.** Marital status for this study is identified as married or not married defined under the state law of California. A recent study investigating risk assessment and prevention of HTN in FA showed those diagnosed with HTN were typically married (Ma, et al., 2017).

**Health insurance.** Health insurance status of the participant is recorded as either currently having health insurance coverage or not having any coverage. A study by Ursua et al., (2013) showed FA patients who had health insurance are associated with greater blood pressure control. Educational background is defined as some high school but no diploma, high-school diploma or its equivalency or bachelor's degree or higher.

**Occupation status** denotes the participant's current status as having an income producing occupation or not currently working. One study using focus groups of FAs

found that stress related to their occupation was a major contributor to high blood pressure (Dela Cruz & Galang, 2008).

**Personal history of HTN.** A personal history of HTN defined as a previous medical diagnosis of hypertension by a healthcare provider. In the US it is estimated that 32.6% of adults between the years 2009-2012 were diagnosed with HTN (Mozaffarian, et al., 2016).

**Family history of HTN.** A family history of hypertension is defined as any directly related family member having the medical diagnosis of hypertension. FAs with a family history of HTN were more likely to be aware of HTN, which could potentially affect health outcomes (Ursua R. A., et al., 2013).

### **Theoretical Framework**

Pender's Health Promotion Model (HPM) will guide this research study. There are five key concepts in the HPM: person, environment, nursing, health, and illness (Pender, 2011). Utilizing this framework will assist the primary investigator in assessing lifestyle factors believed to influence health behavioral changes associated with HTN.

These lifestyle factors include diet control, body weight control, and physical activity and stress management. Pender identifies the relationship between person and environment as being reciprocal to include social, cultural, and physical contexts. Nursing is defined as the individual, families, and communities working together to promote conditions for optimal health. Health is defined as the individual maintaining this balance within their environment by goal-directed behavior and competent self-care. Illnesses are defined as events, which stall the individual's path to health, which for the purposes of this study will be HTN, or lifestyle factors that lead to HTN (Pender, 2011).

Three components of the HPM are individual experiences, behavior-specific effect, and behavioral outcomes. Individual experience can be seen as each patient bringing their own unique personal behaviors shaped by their past. The behavior-specific effect is how the individual perceives the action of healthy life changes, barriers to these changes and other factors surrounding a change in action towards health. Behavioral outcomes are defined as the preparation for an end goal of these actions (Pender, 2011). Figure 1 (Appendix E) identifies the relationship between these components and how they are intertwined.

A pilot study conducted by a nurse practitioner (NP) examined health coaching and HTN management in a private office. Results showed health coaching as an effective model in promoting patient engagement in selected lifestyle modifications and medication adherence. The lifestyle modifications presented by the NP were specifically based off of Pender's model (Crittenden, Seibenhener, & Hamilt, 2017). The same study also shows that family support was a key factor in patient adherence to lifestyle modifications. Similarly, the role of the family and friends is of fundamental importance to FAs in day-to-day matters. Due to this fact, family members of participants will be strongly encouraged to attend workshops in order to foster a supportive and encouraging environment. The HPM utilizing a culturally aware educational intervention can potentially be effective in reducing risk factors related to HTN in the FA population as seen in previous studies (Ursua R. A., et al., 2014).

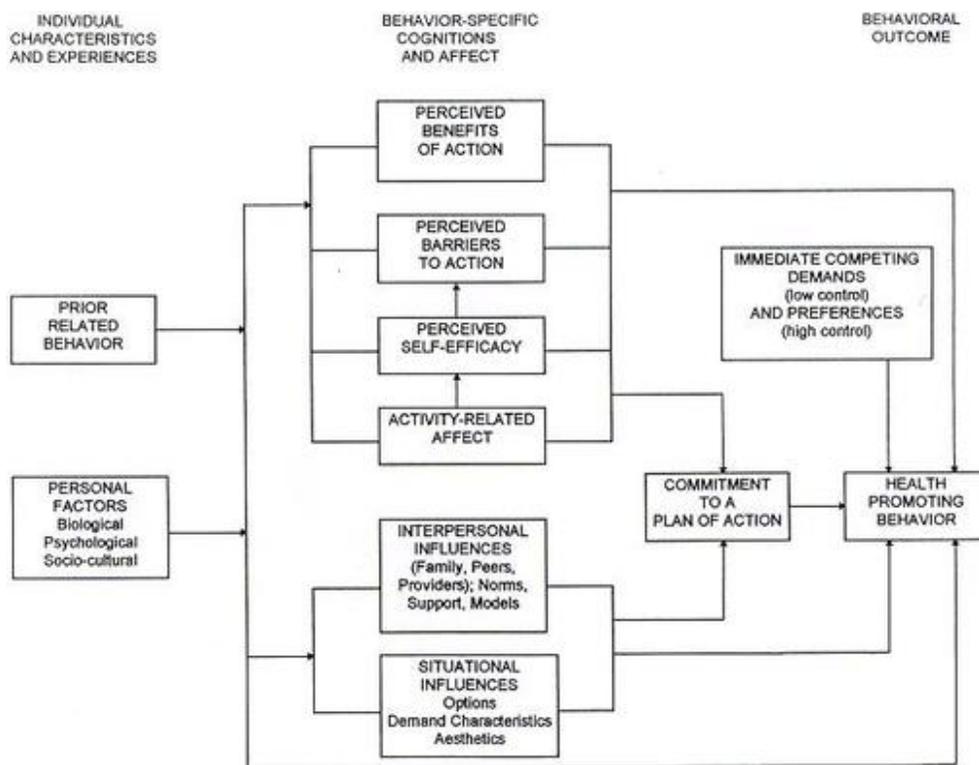


Figure 1. Pender's Health Belief Model

## Summary

Filipino-Americans ages 40-69 in relation to HTN will be the focus of this study. Two studies one by Dela Cruz and Galang (2008) and another by Ursua et al. (2014, 2018) helped shape the structure of this study. The knowledge surrounding hypertension will help to understand and control hypertension risk factors in this population. Improved knowledge can lead to improved health outcomes by identifying and modifying known risk factors in this population. The HPM is used in this study to help implement the health-promoting behaviors.

## **CHAPTER THREE: METHODOLOGY**

### **Introduction**

The shortage of literature investigating the increased prevalence of hypertension among FAs ages 40-69 prompted this study. This major section describes the proposed methods in conducting this study.

The proposed study will take place in a community center in southern San Diego, CA. Participants will be referred and invited from the surrounding community. Participants will primarily be referred from a community health center that serves a large FA population. An educational intervention will be presented about hypertension and prevention methods including diet, physical activity, and stress relieving points.

This study is designed to assess the hypertension knowledge of FAs ages 40-69 in order to better understand any gaps in knowledge. The HK-LS instrument was selected as a means of measurement based on its overall reliability and validity (Erkoc, Isikli, Metinas, & Kalyoncu, 2012).

### **Clinical Question**

The proposed research question: “Is a culturally based educational intervention designed to reduce SBP, DBP and to increase knowledge about hypertension in FAs aged 40-69 years clinically and statistically effective as evidenced by a reduction in SBP, DBP and an increase in knowledge of hypertension and its related risk factors?”

### **Identification of Setting**

The setting for the study is a community center located in southern San Diego County. This center will be able to hold at least 50 individuals comfortably including

adequate lighting and temperature control. The seating arrangement will be placed allowing all participants to easily see a projector screen.

Adult healthcare services provided at the community center include primary care, health education, and support services among others. These services include health checkups, medical appointments, chronic disease management, health screenings, laboratory services, annual physicals, and routine sick visits. Currently, there are 6 clinics in the sprawling San Diego area (Operation Samahan, 2016).

### **Research Design**

The proposed study uses a quasi-experimental, single-group pre-test, post-test quantitative design. Participant knowledge about hypertension prevention, care and treatment will be the dependent variable and the educational intervention is the independent variable. In order to measure the clinical significance of the educational intervention blood pressure measurements will be taken throughout the duration of this study. Blood pressure and knowledge are the dependent variables and education intervention is the independent variable. Patient demographics will be obtained for descriptive purposes.

### **Sample**

The participants will be selected using a non-probability, convenience, and network sampling methodology. The target sample is middle-aged FAs. For the purposes of this study, the included sample size will only include individuals between the ages of 40-69 years.

The sample size was calculated using *G Power 3* software (Faul, Erdfelder, Buchner, & Lang, 2009). The required sample size for this study is 35 participants using

a power of .80, effect size .492 (Ursua R. A., et al., 2014), and an alpha level of .05 for the paired t-test. An additional 20% was added for potential attrition due to uncompleted surveys, for a total of 42 desired participants.

Inclusion criteria incorporates individuals who are of Filipino descent, have the ability to speak Tagalog (the native language of Philippines) and English, between ages of 40-69 years of age and live in the San Diego area. Exclusion criteria include non-English speaking individuals because the questionnaires will be administered in English. Individuals previously or currently on renal dialysis or had experienced a heart attack or stroke will be excluded from this study.

### **Measurement Methods**

**Demographics.** Demographics collected will include age, gender, marital status, health insurance status, educational background, and employment status, self- history of hypertension and family history of hypertension. Demographics will be obtained by adding specific questions to the end of the Hypertension Knowledge- Level Scale (HK-LS) (Erkoc, Isikli, Metinas, & Kalyoncu, 2012) (Appendix D).

**Knowledge.** In order to measure the knowledge about hypertension of the participants, the Hypertension Knowledge- Level Scale (HK-LS) (Erkoc, Isikli, Metinas, & Kalyoncu, 2012). The HK-LS (Erkoc, Isikli, Metinas, & Kalyoncu, 2012) includes 22 items with six-sub dimensions including definition, medical treatment, drug compliance, diet, lifestyle, and complication Permission to utilize this instrument for this study was been submitted to the original author via email and has been approved (see Appendix C).

The HK-LS has demonstrated reliability and validity resulting in a Cronbach alpha coefficient of .82 for the entire scale (Erkoc, Isikli, Metinas, & Kalyoncu, 2012). In

order to maintain the study's reliability sub-dimensions of medical treatment and drug compliance may be omitted post hoc due to low alpha coefficients.

**Blood pressure.** Blood pressure will be measured using a manual sphygmomanometer. A trained research assistant in the proper use of a sphygmomanometer will conduct blood pressure readings. BP readings will be measured in millimeters mercury (mmHg) a total of four times throughout the duration of the study. An initial reading prior to the first workshop and after the completion of each workshop will constitute the four BP readings. The initial and final BP readings will be used for the purposes of this study while the remaining two readings will be obtained for the safety of the participants and will not be included for data analysis.

### **Data Collection**

After receiving expedited approval from the CSUSM and from the community center's external review board, written and electronic flyers will be supplied to the clinics and surrounding community including but not limited to local churches and grocery stores two months in advance. Approval will be sought from the center's external review board will be requested. A room to fit approximately 50 people will be set up to ensure adequate proximity to the aforementioned presentation in order to encourage full participation.

On the day the study begins, the procedures for data collection will proceed as follows:

1. Prospective participants will be settled into their seats
2. The study will be explained to potential participants and informed consent obtained

3. Three forms will be distributed to them: consent form, knowledge questionnaire, and a demographic questionnaire.
4. Instructions will be read aloud to participants detailing the contents of each form and request to fill each form out prior to the start of the educational intervention. In addition to the oral instruction, a written outline stating the purpose and the format of the educational intervention will be distributed. This will include an introduction, schedule of events and the main points of the educational intervention, which will be approximately 1.5 hours for each session (total of 4 sessions). Participants will be given a maximum of 15 minutes for each the pre- and post-test. Written instructions will be reinforced by oral instruction and any questions from the study's participants will be addressed accordingly.
5. The survey questionnaires will be collected in order to track pre and post surveys for statistical analysis.
6. Blood pressure readings will be collected for each participant a total of four times throughout the intervention.

The Statistical Package for the Social Sciences (SPSS) (Faul, Erdfelder, Buchner, & Lang, 2009) latest edition will be used to store and analyze data. Data management will include paper records to be stored for security and confidentiality in a sealed envelope in a locked file cabinet in a locked office only accessible to primary investigator and his advisor. Also, a password protected dedicated laptop computer will be used and stored by the primary investigator. Paper and computer records will be destroyed after the results are published or at 5 years whichever comes first.

## Data Coding

Blood pressure, knowledge and demographics will be collected using the following methods.

**HK-LS.** The HK-LS (Erkoc, Isikli, Metinas, & Kalyoncu, 2012) will be scored according to the author's instruction that may be found in Appendix D. The HK-LS instrument will include all six sub-dimensions: definition, medical treatment, drug compliance, lifestyle, diet, and complications. The maximum score is 22 for the entire scale, 2 for "definition", 4 for "medical treatment", 4 for "drug compliance", 5 for "lifestyle", 2 for "diet", and 5 for "complications" sub-dimensions. The minimum score is zero for the entire scale and for all sub-dimensions.

**Blood pressure.** Blood pressure readings will include a systolic blood pressure and diastolic blood pressure for each participant. An initial and final BP reading will be used for statistical analysis.

**Demographics.** Age will be recorded as age in years. Males will be coded as "1", females will be coded as "0", MTF will be coded as "2", and FTM will be coded as "3". Participants who are married will be coded as "0", single participants will be coded as "1". For health insurance status questions those currently with insurance will be coded as "0", those who do not currently have health insurance will be coded as "1". For educational background participants with some high school but no diploma will be coded as "0", high school or equivalent will be coded as "1" and bachelor's degree or higher will be coded as "2". For employment status participants currently working will be coded as "0" and not currently working coded as "1". No will be coded as "0" and yes will be

coded as “1” for all yes or no questions. All missing values will be coded as “9999” (Plichta & Kelvin, 2012; Polit & Beck, 2012).

### **Data Analysis**

Demographic variables will be obtained for descriptive purposes only. Frequency distributions and histograms will be calculated to evaluate variables for normality (Plichta & Kelvin, 2012; Polit & Beck, 2012). A Cronbach’s alpha will be presented as measures internal consistency (reliability).

Descriptive statistics will be used to describe the sample. Demographic data will include (i.e., age, gender), socio-demographic data (i.e., health insurance status, educational background, employment status) and clinical characteristics (i.e., self- history of HTN, family history of HTN, blood pressure readings).

### **Limitations**

Limitations to this study include the quasi-experimental design and the sampling method. Changes in BP and knowledge cannot be assumed to be due to the intervention alone. Generalizability of the findings may be limited to populations similar to those found in San Diego.

### **Bias**

Investigator bias is a potential source of bias due to the primary investigator being of Filipino descent. Individuals may feel compelled to answer in a certain way due to this connection. A research assistant will be used to minimize this possibility.

### **Ethical Considerations**

Expedited approval will be requested from the CSUSM Institutional Review Board (IRB). All participants in the study will have acknowledged their willingness to participate on their own volition through written informed consent. Written consent will be obtained prior to any data collection.

To ensure confidentiality of responses, all paper data will be kept in a locked file cabinet held by the principal investigator. Digital data will be kept on a password-protected computer and external hard drive.

### **Summary**

Data collection for this study will take place over a four-week period. Operation Samahan will be the setting for the proposed study. Key elements of measurement will be knowledge level and blood pressure readings. Effective recruitment will require coordination between the primary investigator and the clinical liaison at least two months in advance of this study. In addition to flyers, in-person invitations of participation may help in the recruitment of potential participants.

## **CHAPTER FOUR: GRANT ELEMENTS**

### **Introduction**

This major section outlines the grants reviewed for the proposed study. The potential grants and the grant selected are reviewed. The budget outlining all costs including personnel, supplies and consultant costs will be included. The duration of the proposed study and dissemination of findings will be covered in this chapter.

**Potential Grants**

Grants reviewed for this proposal included the Racial and Ethnic Approaches to Community Health (REACH), Health Services Research on Minority Health and Health Disparities (R01 Clinical Trial Optional) and Health Promotion and Disease Prevention Research Centers from the Department of Health and Human Services Centers for Disease Control and Prevention – ERA. The REACH grant and grant funded by the ERA were not chosen due to timing issues with respective deadlines for submittal.

**Selected grant**

[PAR-16-221](#) Health Services Research on Minority Health and Health Disparities (R01 Clinical Trial Optional) was the selected grant for the proposed study. The proposed study will help address the lack of research between the Filipino-American population and hypertension. A clinical trial is a strong design and is one of the best designs to identify potential causes of decreased BP and increased knowledge about hypertension as the result of an educational intervention. The findings from this research project will help improve minority health and reduce health disparities both at the health care system level and individual health care level.

**Budget**

Detailed accounting for this study's educational intervention will be key to maintaining a cost-effective approach. The budget includes time preparation for the study through dissemination of the results. The time frame of this study from beginning to end will be 12 calendar months. The selected grant provides money, property, or both to carry out the approved project that is not limited but will reflect the actual needs of the proposed project. The total estimated direct costs for the proposed study are \$63,579.

**Personnel cost.** Randy Reyes will be the Principal Investigator (PI) for this research project and will devote 40 percent of his time over a 12-month calendar year to this project. Randy Reyes holds a Master's of Science in Nursing. He has over seven years of experience in nursing. He will be responsible for coordination of the research team including team meetings, allocation of education materials and guest lecturers, participant recruitment and overall budget. Annual base salary for a nurse practitioner is \$100,000. Given his four-month involvement (\$25,000), plus fringe benefits of 26% (\$6,500), the total cost is estimated at \$31,500.

**Research Assistant.** An individual to be identified will serve as the research assistant. This individual will devote 40 percent of their time to this study assisting in participant recruitment, securing and setting up meeting rooms, transportation of equipment and office materials, handle questionnaires, consents and checking for completeness, data collection, coding, and analysis and ensuring data security. The estimated cost for the RA is \$17,640 including fringe benefits.

**Consultant.** A mentor who is a professional that has been successful in projects which have been awarded grants that can oversee the process, procedures and grant writing elements will be requested for this project. Dr. Linnea M. Axman DrPH, MSN, FNP-BC, FAANP, will be requested to serve as Mentor on this proposed pilot study. CAPT Axman is a doctorally-prepared Family Nurse Practitioner with over 40 years of experience in nursing. Dr. Axman will serve as a Mentor assisting with methodology and data analysis. A total of \$6,000 will be requested for her participation

**Supplies.** Four stethoscopes and four sphygmomanometers will be required for the blood pressure reading throughout this study for a total of \$500. SPSS (current

edition) software (\$1188), dedicated laptop (\$500), external hard drive (\$65) will be requested for this project. Also, food supplies for two demonstration/activity workshops for a total of \$2,016 will be requested for this portion of the study. A total of \$4,269 is estimated for medical supplies and food products for the proposed project.

**General office supplies, copy paper, and printer ink, educational materials.**

General office supplies and printer paper will be required for the duration of this study estimated at \$200. Educational materials including printouts will be provided to participants (\$500). Total cost requested is \$700.

**Copier expenses.** Consent forms and survey questionnaires will be copied for each participant. The total estimated cost for this expense is \$250.

**Incentives.** An incentive to participate in the study is a \$10 gift certificate to Target given when the final survey questionnaire is completed. The desired sample size is 42 participants. The total estimated expense for incentives (gift certificate) is \$420.

**Travel for the dissemination of research findings.** The PI will present research findings at a national nursing conference (e.g. AANP); \$2,000 is requested for this expense, which will cover conference registration fees, airfare, lodging, per diem, and car rental.

**Timeline**

The application due date is April 11, 2019, by 5:00 pm local time. The timeline for this proposed project will be December 1, 2019, through November 30, 2020. The proposed study will be conducted over a seven-month period. IRB expedited application will be submitted by January 31, 2019. Once IRB approval is granted an associate investigator will be recruited, meeting with the consultant will be arranged and all

necessary resources allocated. Reservation for rooms, guest speakers and presentations will be prepared in anticipation of December 1, 2019 start date. This timeline allows time for preparation and presentation of each week of the educational intervention. Two months of advertising and participant recruitment prior to the first week of the educational intervention and one month after the final week of the educational intervention will be included for data analysis and review of findings.

**Plan for dissemination of findings.**

The findings of this research project will be submitted to local institutions that are involved in the study including CSUSM, Samahan Clinic, local newspapers and Nurse Practitioner organizations such as the American Association of Nurse Practitioners.

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## APPENDIX A

Informed Consent form



California State University  
SAN MARCOS

Randy Reyes, BSN School of Nursing California State University San Marcos San Marcos, CA  
92096-0001 Tel: 8585-603-7591 | Email: reyes072@cougars.csusm.edu

### Voluntary Participation

Participation in this study is entirely voluntary. There are no consequences of any kind if you decide you do not want to participate. If you choose to participate, you may withdraw at any time.

### Contact Information

If you have any questions about this study I will be happy to answer them now. If you have any questions in the future, please contact the principal investigator (Randy Reyes, BSN |Email: reyes072@cougars.csusm.edu | Phone: 858-603-7591). If you have any questions about your rights as a research participant, you may contact CSUSM's Institutional Review Board at 760.750.4029.

I am willing to be videotaped for this study.

\*All taping will be for presentations for school purposes only

Participant's Name Date

Participant's Signature

Research Assistant's Signature

## Informed Consent form (continued)



California State University  
SAN MARCOS

Randy Reyes, BSN School of Nursing California State University San Marcos San Marcos, CA  
92096-0001 Tel: 8585-603-7591 | Email: reyes072@cougars.csusm.edu

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**Voluntary Participation**

Participation in this study is entirely voluntary. There are no consequences of any kind if you decide you do not want to participate. If you choose to participate, you may withdraw at any time.

**Contact Information**

If you have any questions about this study I will be happy to answer them now. If you have any questions in the future, please contact the principal investigator (Randy Reyes, BSN |Email: reyes072@cougars.csusm.edu | Phone: 858-603-7591). If you have any questions about your rights as a research participant, you may contact CSUSM's Institutional Review Board at 760.750.4029.

I am willing to be videotaped for this study.

\*All taping will be for presentations for school purposes only

---

Participant's Name Date

---

Participant's Signature

---

Research Assistant's Signature

## APPENDIX B

### Demographic Form



California State University  
SAN MARCOS

#### Demographic Sheet

1. What is your name?

2. What is your age (write down exact numerical age)?

3. What gender do you identify with (choose one)?

Male (0)

Female (1)

MTF (2)

FTM (3)

4. What is your marital status (choose one)?

Married (0)

Single (1)

5. What is your health insurance status (choose one)?

Currently have health insurance (0)    Do not currently have health insurance (1)

6. What is your educational background (choose one)?

Some high school, no diploma (0)

High School or equivalent (1)

Bachelor's degree of higher (2)

7) What is your employment status?

Out of work and looking for work (0)

Currently have income producing occupation (1)

Retired (2)

8) Have you ever been diagnosed with hypertension (choose one)?

No (1)

Yes (0)

9) Does anyone in your immediate family have hypertension (choose one)?

No (0)

Yes (1)

## APPENDIX C

Approval for permission to use instrument

Dear Reyes,

You can use the Hypertension Knowledge-Level Scale (HK-LS).

I am sending you the "Hypertension Knowledge-level scale (HK-LS)" questionnaire as a PDF attachment and coding instruction for the knowledge and original form of HK-LS as a word attachment.

I am looking forward to hearing from you.

Yours sincerely,

Mrs. Sultan BALIZ ERKOC.

----- Özgün İleti -----

Kimden : [reyes072@cougars.csusm.edu](mailto:reyes072@cougars.csusm.edu)

Kime : [s.baliz@mynet.com](mailto:s.baliz@mynet.com)

Gönderme tarihi : 21 Nisan 2016 Perşembe 04:31

Konu : Request for access to HK-LS tool

Greetings,

My name is Randy Reyes and I am a registered nurse from San Diego, CA. I would like to kindly request access to the Hypertension Knowledge- Level Scale tool that you developed. If permitted, I will be utilizing your tool in a study to help fulfill requirements in my nurse practitioner program.

If requested to I am more than happy to supply more details in regards to the study.

Warm regards,

Randy Reyes

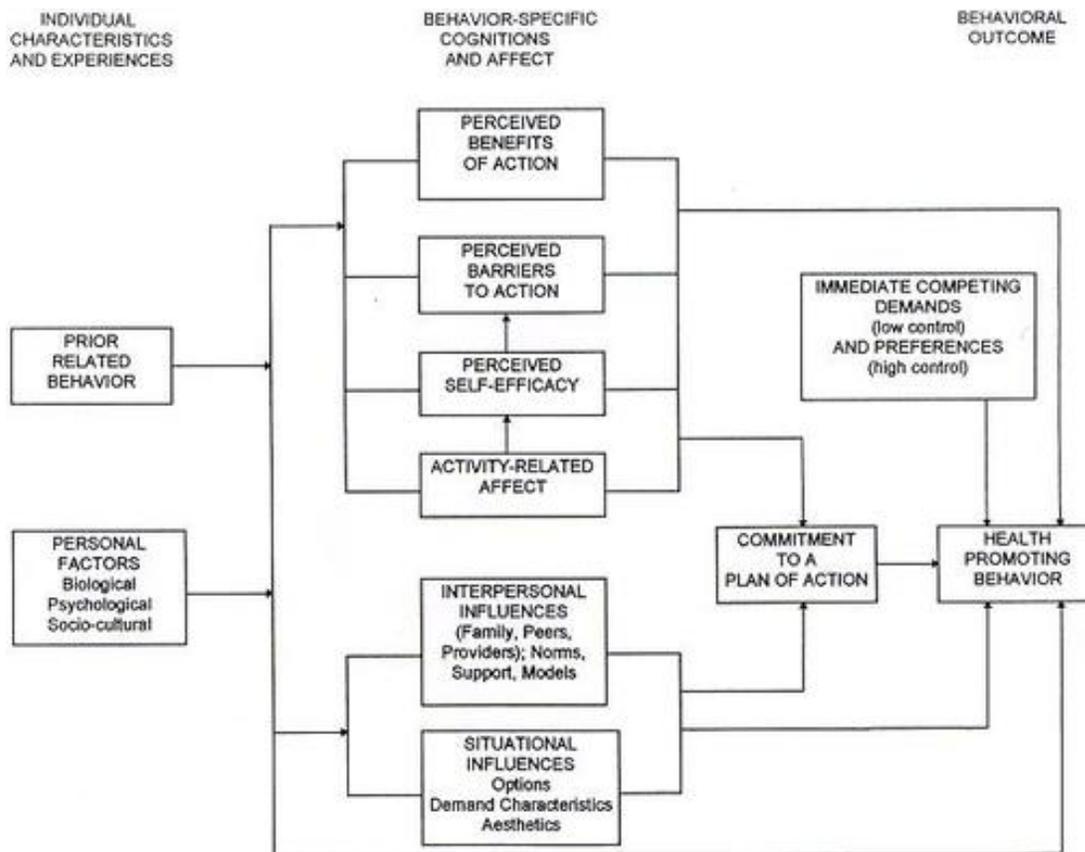
## APPENDIX D

## Scoring of HK-LS

| <b>Sub-dimensions</b>    |   |
|--------------------------|---|
| <b>Item number</b>       | <b>Item</b>   |
| <b>Definition</b>        |   |
| 1                        | Increased diastolic blood pressure also indicates increased blood pressure.                                       |
| 2                        | High diastolic or systolic blood pressure indicates increased blood pressure.                                     |
| <b>Medical Treatment</b> |   |
| 3                        | Drugs for increased blood pressure must be taken everyday.  |
| 4                        | Individuals with increased blood pressure must take their medication only when they feel ill.                     |
| 5                        | Individuals with increased blood pressure must take their medication throughout their life.                       |
| 6                        | Individuals with increased blood pressure must take their medication in a manner that makes them feel good.       |
| <b>Drug Compliance</b>   |   |
| 7                        | If the medication for increased blood pressure can control blood pressure, there is no need to change lifestyles. |
| 8                        | Increased blood pressure is the result of aging, so treatment is unnecessary.                                     |
| 9                        | If individuals with increased blood pressure change their lifestyles, there is no need for treatment.             |
| 10                       | Individuals with increased blood pressure can eat salty foods as long as they take their drugs regularly.         |

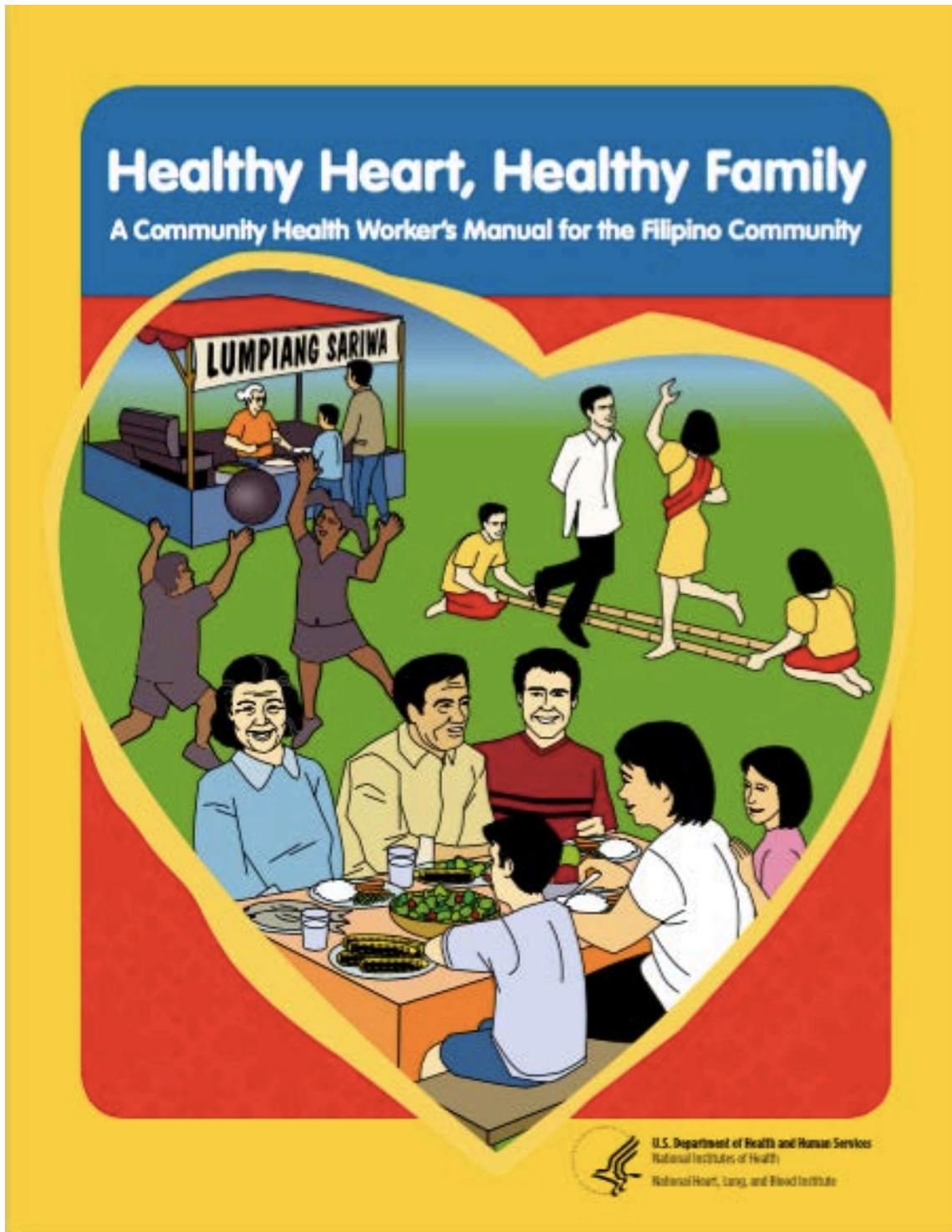
## APPENDIX E

## Pender Health Promotion Model



APPENDIX F

Education Materials



## APPENDIX G

### Curriculum Overview and Cultural Components (Ursua R. A., et al., 2014)

**Table 1**

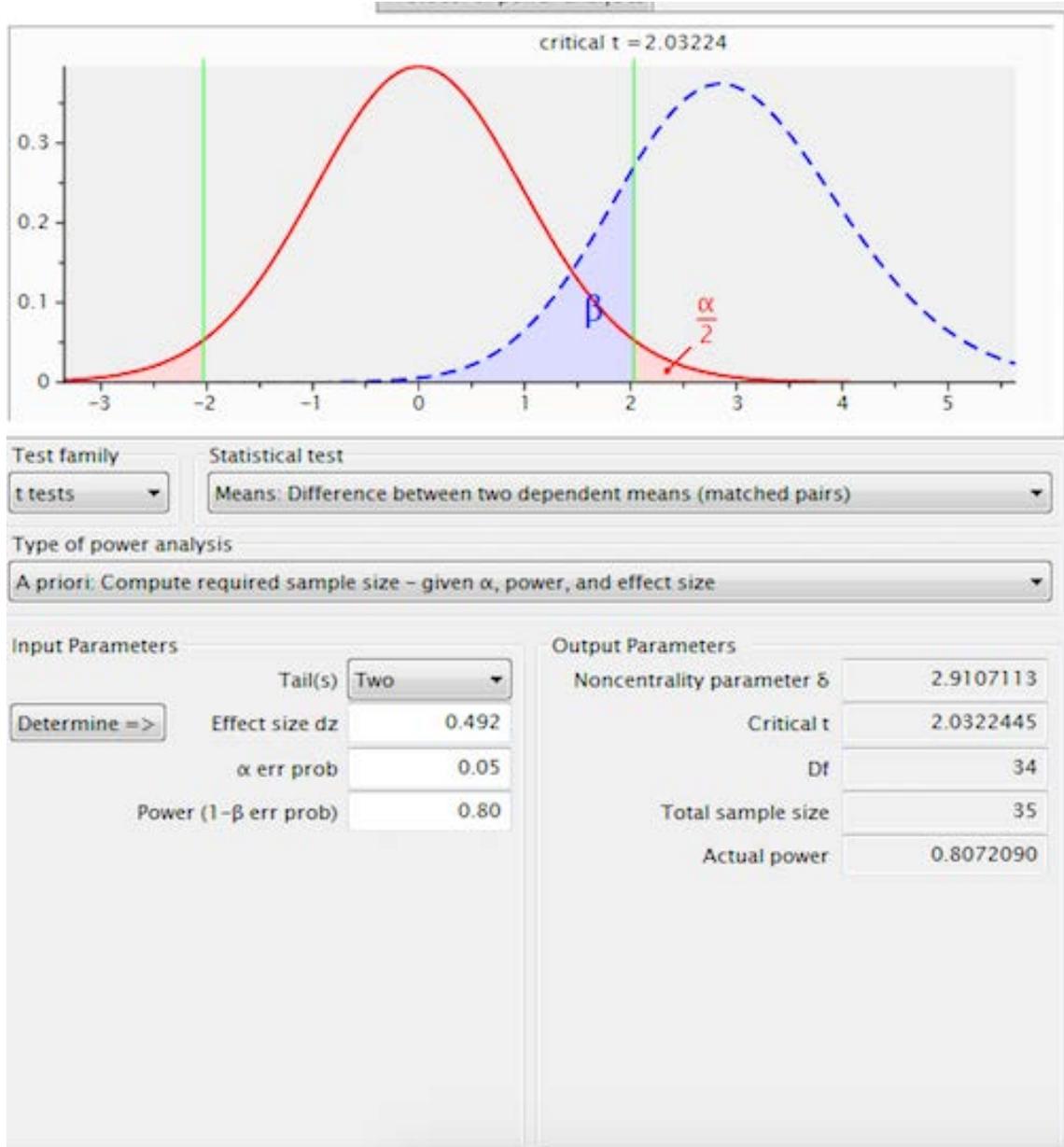
Curriculum Overview and Cultural Components

| Session Topic  | Session Overview   | Tailored Cultural Components   |
|--|--|--|
| Heart disease and heart attack                       | <ol style="list-style-type: none"> <li>1 How the heart works &amp; the heart's structure</li> <li>2 Facts and risk factors of heart disease</li> <li>3 What is a heart attack &amp; the importance of rapid treatment for a heart attack</li> <li>4 Warning signs of a heart attack</li> <li>5 The role of emergency medical services &amp; how to plan ahead</li> </ol>   | <ol style="list-style-type: none"> <li>1 Information was added to highlight local health and social services and health insurance options for low-income immigrants.</li> </ol>                                    |
| Control of cholesterol and control of blood sugar    | <ol style="list-style-type: none"> <li>1 Facts about saturated fat, trans fat, and cholesterol</li> <li>2 Nutrition facts label activity</li> <li>3 Cooking with less saturated fat</li> <li>4 Your weight and your health &amp; the healthy way to lose weight</li> <li>5 Serving size activity</li> <li>6 Diabetes - What is it, types, &amp; symptoms</li> <li>7 Complications of diabetes &amp; diabetes control</li> <li>8 Hidden sugar in drinks activity</li> </ol> | <ol style="list-style-type: none"> <li>1 The discussion of CVD risk factors was contextualized into Filipino history and culture</li> </ol>  |
| Physical Activity, weight management, and BP control | <ol style="list-style-type: none"> <li>1 Getting started with physical activity</li> <li>2 Tips to physical activity and staying motivated</li> <li>3 Stretching activities</li> <li>4 Sample walking program</li> <li>5 Facts about BP and stroke</li> <li>6 Salt and sodium</li> <li>7 Alcohol</li> <li>8 Managing high BP with medicine</li> </ol>  | <ol style="list-style-type: none"> <li>1 Food and exercise examples were realistic options in the NYC/NJ communities</li> <li>2 Included discussions on disease management (e.g., medication adherence)</li> </ol> |
| Nutrition and cigarette smoking                      | <ol style="list-style-type: none"> <li>1 The traditional Filipino diet</li> <li>2 A heart healthy eating plan for Filipino families</li> <li>3 How to choose heart healthy foods</li> <li>4 Cooking with children</li> <li>5 Eating heart healthy with little time</li> <li>6 Saving money on your food bill</li> <li>7 Facts about smoking &amp; secondhand smoke</li> <li>8 Youth and smoking</li> <li>9 Smoking and your wallet</li> </ol>                              | <ol style="list-style-type: none"> <li>1 Food examples remained in Filipino terms (e.g., <i>chicharow</i> was more understandable than "pork rinds")</li> </ol>  |

Permission pending

## APPENDIX H

Sample size prior to data collection



## APPENDIX I

### Budget Justification

Program Director/Principal Investigator (Last, First, Middle): **Reyes, Randy Morales**

| <b>DETAILED BUDGET FOR INITIAL BUDGET PERIOD<br/>DIRECT COSTS ONLY</b>  |                 |             |              |               |                   | FROM<br>12/01/2019                         | THROUGH<br>11/31/2020 |                 |
|---|-----------------|-------------|--------------|---------------|-------------------|--|-----------------------|-----------------|
| <small>List PERSONNEL (Applicant organization only)<br/>Use Cal, Acad, or Summer to Enter Months Devoted to Project<br/>Enter Dollar Amounts Requested (omit cents) for Salary Requested and Fringe Benefits</small>                                  |                 |             |              |               |                   |  |                       |                 |
| NAME  | ROLE ON PROJECT | Cal. Months | Acad. Months | Summer Months | INST. BASE SALARY | SALARY REQUESTED                           | FRINGE BENEFITS       | TOTAL           |
| Randy Reyes   | PI              | 3           | █            | █             | █                 | \$25,000                                   | \$6,500               | \$31,500        |
| TBD   | RA              | 4           | █            | █             | █                 | \$14,000                                   | \$3,640               | \$17,640        |
| Dr. Lippea Axman  | Mentor          | 1           | █            | █             | █                 | \$6,000                                    | █                     | \$6,000         |
| █   | █               | █           | █            | █             | █                 | █  | █                     | █               |
| █   | █               | █           | █            | █             | █                 | █  | █                     | █               |
| █   | █               | █           | █            | █             | █                 | █  | █                     | █               |
| █   | █               | █           | █            | █             | █                 | █  | █                     | █               |
| <b>SUBTOTALS</b> →  |                 |             |              |               |                   | <b>\$45,000</b>                            | <b>\$10,140</b>       | <b>\$55,140</b> |
| <b>CONSULTANT COSTS</b>   |                 |             |              |               |                   |  |                       |                 |
| Registered dietitian, local chef, physical therapist, recreational therapist (\$250 Target gift card to each consultant)  |                 |             |              |               |                   |  |                       | \$1000          |
| <b>EQUIPMENT</b> (itemize)  |                 |             |              |               |                   |  |                       |                 |
| █   |                 |             |              |               |                   |  |                       |                 |
| <b>SUPPLIES</b> (itemize by category)   |                 |             |              |               |                   |  |                       |                 |
| Supplies (stethoscopes, sphygmomanometers, external hard drive, software, dedicated laptop, - \$2,253. General office supplies, copy paper, and printer ink, education material- \$700. Copier expenses- \$250, food/drink (for demonstration) \$2016 |                 |             |              |               |                   |  |                       | \$5,219         |
| <b>TRAVEL</b>   |                 |             |              |               |                   |  |                       |                 |
| Travel for dissemination of research findings   |                 |             |              |               |                   |  |                       | \$2000          |
| <b>INPATIENT CARE COSTS</b>   |                 |             |              |               |                   |  |                       |                 |
| █   |                 |             |              |               |                   |  |                       |                 |
| <b>OUTPATIENT CARE COSTS</b>  |                 |             |              |               |                   |  |                       |                 |
| █   |                 |             |              |               |                   |  |                       |                 |
| <b>ALTERATIONS AND RENOVATIONS</b> (itemize by category)  |                 |             |              |               |                   |  |                       |                 |
| █   |                 |             |              |               |                   |  |                       |                 |
| <b>OTHER EXPENSES</b> (itemize by category)   |                 |             |              |               |                   |  |                       |                 |
| Incentive for participants completing study- \$10 gift card to Target (total 42)  |                 |             |              |               |                   |  |                       | \$420           |
| <b>CONSORTIUM/CONTRACTUAL COSTS</b>   |                 |             |              |               |                   | <b>DIRECT COSTS</b>                        |                       |                 |
| <b>SUBTOTAL DIRECT COSTS FOR INITIAL BUDGET PERIOD</b> (Item 7a, Face Page)   |                 |             |              |               |                   | <b>\$ 63,779</b>                           |                       |                 |
| <b>CONSORTIUM/CONTRACTUAL COSTS</b>   |                 |             |              |               |                   | <b>FACILITIES AND ADMINISTRATIVE COSTS</b> |                       |                 |
| <b>TOTAL DIRECT COSTS FOR INITIAL BUDGET PERIOD</b>   |                 |             |              |               |                   | <b>\$ 63,779</b>                           |                       |                 |

Budget Justification (continued)

Program Director/Principal Investigator (Last, First, Middle): **Reyes, Randy Morales**

**BUDGET FOR ENTIRE PROPOSED PROJECT PERIOD  
DIRECT COSTS ONLY**

| BUDGET CATEGORY TOTALS  | INITIAL BUDGET PERIOD<br>(from Form Page 4) | <del>2nd-ADDITIONAL</del><br>YEAR OF SUPPORT<br>REQUESTED | <del>3rd-ADDITIONAL</del><br>YEAR OF SUPPORT<br>REQUESTED | <del>4th-ADDITIONAL</del><br>YEAR OF SUPPORT<br>REQUESTED | <del>5th-ADDITIONAL</del><br>YEAR OF SUPPORT<br>REQUESTED |
|---|---|---|---|---|---|
| PERSONNEL: Salary and fringe benefits. Applicant organization only. | \$55,140                                    | ■   | ■   | ■   | ■   |
| CONSULTANT COSTS  | \$1,000                                     | ■   | ■   | ■   | ■   |
| EQUIPMENT   | ■   | ■   | ■   | ■   | ■   |
| SUPPLIES  | \$5,219                                     | ■   | ■   | ■   | ■   |
| TRAVEL  | \$2,000                                     | ■   | ■   | ■   | ■   |
| INPATIENT CARE COSTS  | ■   | ■   | ■   | ■   | ■   |
| OUTPATIENT CARE COSTS   | ■   | ■   | ■   | ■   | ■   |
| ALTERATIONS AND RENOVATIONS   | ■   | ■   | ■   | ■   | ■   |
| OTHER EXPENSES  | \$420                                       | ■   | ■   | ■   | ■   |
| DIRECT CONSORTIUM/<br>CONTRACTUAL COSTS                             | ■   | ■   | ■   | ■   | ■   |
| <b>SUBTOTAL DIRECT COSTS</b><br><i>(Sum = Item 8a, Face Page)</i>   | \$63,779                                    | ■   | ■   | ■   | ■   |
| F&A CONSORTIUM/<br>CONTRACTUAL COSTS                                | ■   | ■   | ■   | ■   | ■   |
| <b>TOTAL DIRECT COSTS</b>   | \$63,779                                    | ■   | ■   | ■   | ■   |
| <b>TOTAL DIRECT COSTS FOR ENTIRE PROPOSED PROJECT PERIOD</b>        |   |   |   |   | <b>\$ 63,779</b>  |

JUSTIFICATION. Follow the budget justification instructions exactly. Use continuation pages as needed.

■