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PROMOTING HEALTH LITERACY AMONG RURAL NATIVE HAWAIIANS AND PACIFIC ISLANDERS WITH HYPERTENSION

by

Priscilla O'Nee Austin

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A DNP Project Submitted to the Faculty of the

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In Partial Fulfillment of the Requirements

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DOCTOR OF NURSING PRACTICE

In the Graduate College

THE UNIVERSITY OF ARIZONA

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GRADUATE COLLEGE

As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Priscilla O'Nee Austin entitled "Promoting Health Literacy among Native Hawaiians and Pacific Islanders with Hypertension" and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

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Final approval and acceptance of this DNP project is contingent upon the candidate's submission of the final copies of the DNP project to the Graduate College.

I hereby certify that I have read this DNP project prepared under my direction and recommend that it be accepted as fulfilling the DNP project requirement.

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STATEMENT BY AUTHOR

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SIGNED: __Priscilla O'Nee Austin_____

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ABSTRACT

Low health literacy affects overall health and is associated with poor chronic disease self-management and medically underserved populations. The purpose of this project was to promote health literacy by utilizing the teach back method to deliver culturally sensitive information to enhance knowledge about the risks, management, and prevention of hypertension among Native Hawaiians and Pacific Islanders in a rural primary care clinic in Northern Oahu. Pender's Health Promotion Model was used to guide the creation of this intervention and the Institute for Healthcare Improvement Model was used to guide implementation. Item responses on the High Blood Pressure Questionnaire were used to investigate the efficacy of the teach back method in improving hypertension knowledge pre-and post intervention. Responses were analyzed using an Excel spreadsheet for descriptive data.

Eight participants identifying as either Native Hawaiian or Pacific Islander aged 35 and over were included in the DNP project. Each answered a questionnaire prior to the intervention, received a one-on-one teach back session, then participated in a telephone interview one week later to complete the post-questionnaire. The results indicated that there was improvement in at least four of the responses from pre to post-intervention. There was no change in four of the item responses as participants had correct knowledge before and after the intervention. Overall, providers should be encouraged to utilize the teach back method when delivering culturally sensitive information to improve their patients' outcomes.

INTRODUCTION

Native Hawaiians and Pacific Islanders (NHPI) have a high prevalence of hypertension. Hypertension, or high blood pressure, defined as a systolic blood pressure of 140 or above and/or a diastolic blood pressure of 90 or above is a chronic condition that leads to high rates of mortality and morbidity worldwide (Benjamin et al., 2017). Hypertension is the leading risk factor for cardiovascular disease and the largest contributor to cardiovascular-related deaths (Zhou et al., 2017). The Centers for Disease Control (2017) reports that only 54% of Americans have their hypertension under control. If left untreated or improperly managed, it may lead to kidney failure, myocardial infarctions, and premature death from cardiovascular-related complications (Forouzanfar et al., 2017). However, hypertension is often asymptomatic, and as a result, it frequently goes undetected.

The American Heart Association reported 85.7 million, or 34.0%, of Americans had hypertension by 2014 (Benjamin et al., 2017). Its prevalence in US adults is also projected to increase from 8.4% in 2012 to 41.4% by 2030 (Benjamin et al., 2017). The likelihood of a hypertension diagnosis increases with age across all ethnic and sex groups (Yano et al., 2017). Older adults represent the largest age group with at least 60% to 90% having an increased systolic blood pressure (Yano et al., 2017). In 2012, at least 11% of persons aged 8 to 17 years had a hypertension diagnosis (Benjamin et al., 2017).

Background

Native Hawaiians and Pacific Islanders are a minority group comprised of over 50 populations of people each with distinct cultures, practices, and beliefs (Sentell, Baker, Onaka, & Braun, 2011). They are also the fastest growing minority group in the U.S. making up 5% of the

population with over 15 million people (Edelman, Mandle, & Kudzma, 2013). While hypertension affects all ethnic groups, NHPIs have an unequal burden of hypertension and other cardiovascular-related issues (Kaholokula et al., 2015). The prevalence of hypertension among NHPI residing in Hawaii is 1.7 times higher than Whites residing in Hawaii (Tung & Barnes, 2014). NHPI are also 70% more likely to develop hypertension and cardiovascular-related diseases at least a decade sooner than Caucasians (Kaholokula et al., 2015). They also seek and receive hypertension treatment less frequently than Caucasians, leading to a greater risk of cardiovascular-related illnesses and complications (Kaholokula et al., 2015).

Managing hypertension in NHPIs on the primary care level involves managing diet, modifying lifestyle choices, and adhering to medication regimens. Cultural influences promote sedentary lifestyles and affect local Hawaiian diet choices. The typical NHPI meal consists of processed meat, carbohydrates, sugar, and a high fat content (Tung & Barnes, 2014). Those with hypertension are expected to self-manage their care and participate in healthy self-care practices to control blood pressure. Self-care requires a person to play a crucial role in modifying and managing their lifestyle choices. The American Society of Hypertension and the International Society of Hypertension recommend healthy weight, limited alcohol and sodium intake, regular exercise, medication compliance and a diet balanced with fruits, vegetables, low fat dairy, and reduced fats (Weber et al., 2013). Many factors affecting self-care play a major role in positive health outcomes.

Cultural Norms

Much of Native Hawaiian health is connected through balance and harmony with oneself, lo¯kahi, which treats the mind, body, and spirit as one (Office of Hawaiian Affairs, 2015). Many

of their traditional healing beliefs rely upon complementary and alternative medicine (CAM) such as herbal remedies, massage, and shifts in energy (Perez & Pinzon-Perez, 2016). Hypertension prevalence among this population is affected by their beliefs and perceptions of Western medicine. Many NHPI believe that Western medicine devalues and discriminates against their cultural traditions by providing very few treatments and ways to manage their care (Kaholokula et al., 2015). As a result, some NHPI do not seek healthcare providers trained in Western medicine and continue to practice their own cultural treatments.

Contributing a large portion of finances to the household and close relatives plays a role in some NHPI not attending to their personal health needs (Tung & Barnes, 2014). Traditional NHPI values are centered on respecting family connectedness, social involvement, and kinship. Many practice the cultural value of sacrificing to benefit the family (Tung & Barnes, 2014). It is also common for multiple generations to live in one household, in which, elders are at the head. Male and elder family members' health conditions also have priority over all others (Perez & Pinzon-Perez, 2016). Furthermore, these cultural family values affect treatment compliance as only 11.1% of NHPI take their prescribed hypertension medication (Tung & Barnes, 2014).

Health Literacy

Health literacy is the ability to access and understand basic health information in order to make appropriate health decisions (World Health Organization, 2017). Health literacy determinants include the ability to understand and apply basic healthcare knowledge as well as have access to care (Lassetter et al., 2014). Low health literacy is common and it can affect how well patients self-manage their hypertension. According to the World Health Organization, low health literacy affects overall health and is associated with older adults, lower education levels,

medically underserved, and poor chronic disease management (WHO, 2017). It has been linked to poorer health outcomes in Hawaii with NHPI self-reporting the highest percentage of poor health (Sentell, Baker, Onaka, & Braun, 2011). Low health literacy in NHPI is often problematic because many providers make recommendations with the assumption that patients understand the information being provided (Lassetter et al., 2014). Cultural awareness and sensitivity to low health literacy among NHPI are contributors to successfully managing hypertension care in this population.

Local Problem

Ko'olauloa Community Health and Wellness Center (KCHWC), is a rural Northern Oahu primary care center in the Ko'olauloa district of Kahuku, Hawaii. The center currently has 439 NHPI patients diagnosed with hypertension who seek care from the clinic. Many of the patients have difficulty understanding education regarding home self-management of their blood pressure as evidenced by their provider's assessment at the next visit. Clinic providers have reported that some of the patients misunderstand information provided, especially when more than one key point is discussed at a single visit. Providers also report that patients have difficulty remembering the importance of hypertension and why avoidance of some foods is necessary. As a result, patients continue to present to the clinic for follow up appointments with blood pressure readings that are not at goal. For those with diabetes, the goal is 130/80, and it is 140/90 for those without diabetes.

Purpose

The specific aim of this project is to promote health literacy by utilizing the teach back method to deliver culturally sensitive information to enhance knowledge about the risks,

management, and prevention of hypertension among Native Hawaiians and Pacific Islanders in a rural primary care clinic. Caring for the NHPI population requires cultural competence and strategies that accommodate the needs of this population. Healthcare providers must be able to adapt and provide NHPI patients with strategies that can accommodate their cultural norms and health literacy level. According to the Agency for Healthcare Research and Quality (AHRQ), the teach back method improves knowledge and self-care behaviors by using plain language at the literacy level of the learner (U.S. Department of Health and Human Services, 2015). Using this evidence-based teaching strategy increases health literacy and promotes hypertension self-management. Furthermore, the teach back method improves patient outcomes, adherence, and understanding (Negarandeh, Mahmoodi, Noktehdan, Heshmat, & Shakibazadeh, 2013).

Study Question

Does a culturally sensitive intervention using the teach back method improve hypertension awareness among Native Hawaiians and Pacific Islanders in a rural primary care clinic in Northern Oahu?

FRAMEWORK AND CONCEPTS

Theoretical Framework

Pender's Health Promotion Model (HPM)

The culturally sensitive 'teach back' intervention was guided by Pender's Health Promotion Model (HPM). Effective interventions based on health promotion models create successful outcomes for primary care and public health issues (Ghasemi, Estebsari, Bastaminia, Jamshidi, & Dastoorpoor, 2014). Pender's HPM was chosen for this project as it views each person as a unique being and considers sociocultural factors when promoting change (Finkelman

& Kenner, 2010). It supports the cultural values of NHPI and the concepts of previous behaviors, prior-related knowledge, and current perception of health benefits. These aspects were helpful in identifying barriers to health literacy based on traditional cultural beliefs and ways to better provide information regarding hypertension.

The HPM played an important role in guiding this project because identifying the previous behaviors, prior-related knowledge, and current perceptions of this group of NHPI helped tailor education toward their beliefs. The interactive teach back intervention incorporated strategies to overcome low health literacy by implementing Pender's model to address cultural sensitivity. Understanding previous behaviors may help create initiatives to promote more positive future health outcomes. Assessing prior knowledge with consideration for cultural sensitivity helped determine the information that was provided during the intervention. Long-term lifestyle changes are often difficult in subcultural groups due to lower education levels, poor health literacy, and strong beliefs (Pender, Murdaugh, & Parsons, 2015). Assessing perceived benefits to lifestyle changes allows providers to integrate more culturally accepted health promotion among the NHPI population.

Pender's model explains and predicts the health-promotion component of lifestyle (Polit & Beck, 2012). Modifying lifestyle behaviors can have a positive impact on hypertension improvement (Benjamin et al., 2017). Interpersonal and situational influences may reveal issues related to why an individual faces difficulty with changing diet habits to accommodate their high blood pressure (Sharifirad, Kamran, Azadbakht, Mahaki, & Mohebi, 2015). Conducting a needs assessment with key organizational stakeholders and hypertensive patients to assess areas of hypertension literacy that are more challenging for patients guided the information to be

provided. Understanding cultural beliefs, attitudes, and practices are essential to providing care to NHPI and implementing education tools. (Figure 1).

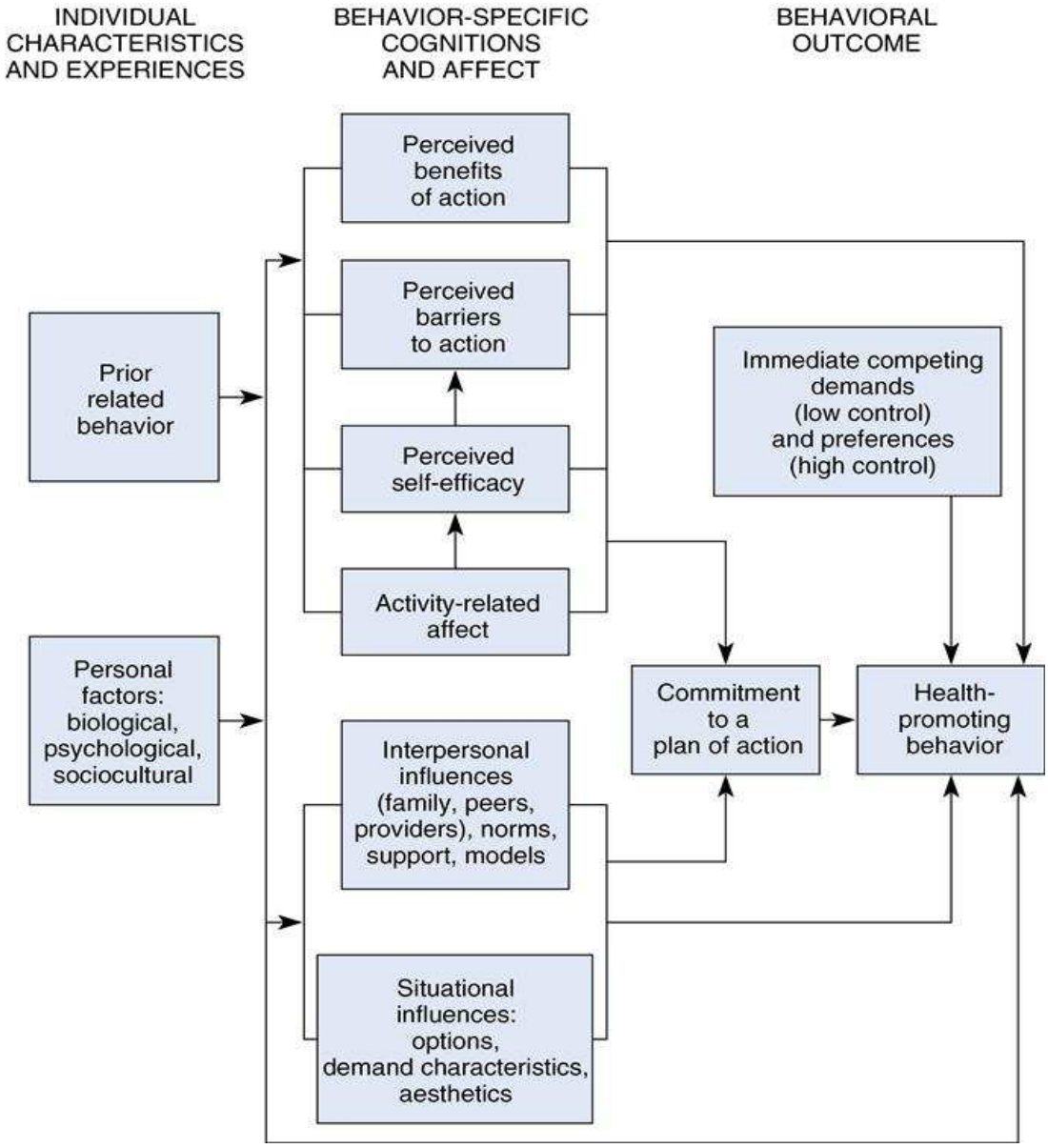


FIGURE 1. Pender's Model for Health Promotion (Derived from Health Promotion in Nursing Practice (7th ed.). Pender, Murdaugh, & Parsons, 2015).

Institute for Healthcare Improvement (IHI) Model

The implementation of this quality improvement project was guided by the IHI's Model for Improvement. The IHI model is geared toward helping health care providers create change in their organizations (Institute for Healthcare Improvement, 2017). This model focuses on setting aims to assess why a problem exists (IHI, 2017). Brainstorming to assess the reasons why NHPI patients are not meeting their blood pressure goals was accomplished through needs assessment interviews with clinical staff. Changes utilizing the IHI's model should be implemented on a small scale to allow for motivation to grow and improvements if needed (IHI, 2017).

Plan-Do-Study-Act (PDSA)

The Plan-Do-Study-Act (PDSA) framework by Langley et al. (2009) offers a way to develop an intervention, test its effectiveness, and make corrections before implementing it on a larger scale (IHI, 2017). It consists of four steps: Plan, Do, Study, and Act. The Plan step gears a team toward initiating a particular change (Taylor et al., 2013). In the Do step, a team carries out the plan or sets it in motion. The Study step entails examining the results and learning how to revise the plan (IHI, 2017). The Act step allows a team to revise the plan and make changes for improvement (IHI, 2017). It allows for continuous learning and coupling the PDSA cycle with Pender's model helped steer this intervention toward more cultural sensitive initiatives. This framework is action-based and sufficient to delve into this QI project as it allows for cycles of change and reassessment at times when intervention methods may need to be reexamined.

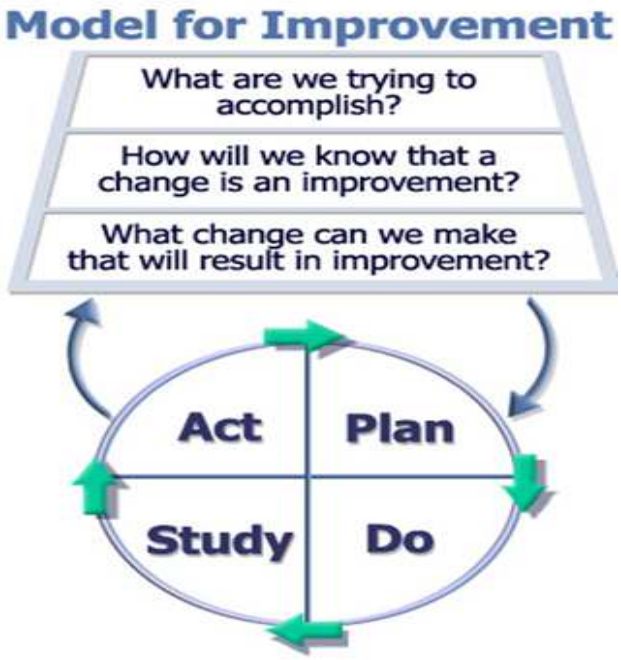


FIGURE 2. PDSA Model for Improvement (Derived from Institute for Healthcare Improvement, 2017).

The IHI framework begins with answering three questions (Figure 2). Promoting an increase in health literacy about hypertension risk and management among NHPI in rural Northern Oahu is the intended accomplishment. Increased knowledge about hypertension is a change that notes improvement as evidenced by blood pressure control, diet regulation, and medication adherence. Implementing culturally sensitive patient education methods is a way for providers to aid in accomplishing the change. Overall, improving knowledge about hypertension among this group of NHPI may lead to improved self-care management.

Concepts

NHPI are a very spiritually driven population and many of their ancestral healing beliefs are founded on spiritual energy (Perez & Pinzon-Perez, 2016). These strong cultural values and beliefs shape how NHPI currently treat their health ailments. Personal factors, cultural influence, and prior behaviors are factors that play a role in how NHPI perceive their health issues.

Treatment options are also chosen based on disease symptoms as they relate to a disruption in *lo¯kahi. Lo¯kahi* is harmony with oneself and others (Perez & Pinzon-Perez, 2016).

Healing

Traditional cultural NHPI concepts that greatly affect health-seeking behaviors include *ohana, lo¯kahi, aloha, la'au lapa' au, la'au Kahea, and huna* (Perez & Pinzon-Perez, 2016). *Ohana* is an umbrella term that means family. It includes those in the immediate and extended family (Perez & Pinzon-Perez, 2016). *Aloha* is the universal Hawaiian word for hello, love, and care (Perez & Pinzon-Perez, 2016). Establishing aloha with patients builds rapport and promotes a trusting relationship. *La'au lapa' au* is the term for herbal remedies and the healing power of plant-based treatments (Perez & Pinzon-Perez, 2016). L*a'au Kahea* means prayer or seeking guidance from a higher power (Perez & Pinzon-Perez, 2016). The word *huna* encompasses the belief that spiritual healing through shamanism increases one's healing powers and spirituality (Perez & Pinzon-Perez, 2016).

Cultural Behaviors

One's culture shapes their beliefs, behaviors, and experiences. There is a strong bond among NHPI families and factors such as financial burdens shape their health-seeking behaviors. Therefore, providing care for this population means recognizing cultural differences and being sensitive to their way of life. Cultural sensitivity is the awareness of and the ability to be sensitive to the practices and norms of other cultures (Roux & Halstead, 2017). Guidance from Pender's HPM can help predict behaviors and implement culturally sensitive information about hypertension. Understanding these concepts helps to understand gaps in NHPI health literacy.

SYNTHESIS OF EVIDENCE

Teach Back and Health

Self-care is an important factor in managing chronic conditions, especially hypertension (Benjamin et al., 2017). It includes medication compliance, lifestyle modifications, and consistent communication with providers. It also includes monitoring one's own blood pressure and keeping follow up appointments. Studies have explored teach back methods that address low health literacy and self-management of chronic conditions. These studies were conducted to improve self-care behaviors by implementing teach back methods to improve patient comprehension.

To gain a better understanding about the effectiveness of the teach back method on health literacy and chronic diseases, a systematic literature review was conducted using Cumulative Index of Nursing and Allied Health Literature (CINAHL), PubMed, and the Cochrane Library. The following key words were used: teach back, chronic disease, and health literacy. Inclusion criteria for articles included: published within the last five years, English language, primary research articles, and human species. These searches yielded a total of 27 results. Articles were screened using abstract information. They were excluded if they did not specifically relate to using teach back methods to address health literacy in those with chronic conditions. There were a total of nine articles that met criteria for this project (Appendix A).

According to the literature, teach back methods have been effective when geared toward health literacy and patients' conditions. Conducting health-literacy screenings prior to initiating teach back sessions has been found to increase comprehension of discharge instructions, medications, and follow-up in emergency room settings (Griffey et al., 2015). It was also

effective at decreasing 30-day hospital readmissions and increasing inhaler compliance by 46% among those hospitalized with asthma and chronic obstructive pulmonary disease (Press et al., 2012). In a study assessing health literacy and diabetic patients, teach back methods were effective at increasing diet and medication adherence and overall increased knowledge of their condition (Negarandeh, Mahmoodi, Noktehdan, Heshmat, & Shakibazadeh, 2013). Patients report that being asked to teach back the information increases their knowledge, confirms what they have learned, and strengths their provider-patient relationship (Samuels-Kalow, Hardy, Rhodes, & Mollen, 2016).

There were three studies relating specifically to hypertension and teach back methods. Graarup, Ferrari, & Howard (2016) implemented teach back methods that showed improvement in hypertension self-care management and overall long-term positive outcomes. Much of the research shows that hypertension can be improved through teach back methods for other chronic diseases. For example, teach back education for patients with diabetes showed improved blood pressure self-management as well as blood sugar control (Zullig et al., 2015). While studying the teach back method with heart failure patients, improvements in blood pressure were a direct result of improved self-care behaviors such as dietary salt reduction and medication compliance (Howie-Esquivel, 2014).

Some of the most effective ways to implement teach back methods include health coaching, audio-recordings and videos, and pictorial images. Health coaching uses teach back methods to close the loop on knowledge deficits. Coaches have patients repeat information until it is accurate and understood (Ghorob, 2013). Teach back efforts that used coaching techniques showed an improvement in glycated hemoglobin (Hemoglobin A1C) levels as compared to those

who were not coached (Ghorob, 2013). Studies showed improved knowledge about discharge information when patients were provided with information via audio/video then instructed to repeat it back before leaving the hospital (Griffey et al., 2015). Furthermore, researchers used pictorial images to address low literacy, increase knowledge, and encourage improvements in dietary regimens for patients with diabetes (Negarandeh, Mahmoodi, Noktehdan, Heshmat, & Shakibazadeh, 2013).

Further research is needed to address teach back methods for hypertension. Limitations exist in underserved populations and culturally appropriate teach back methods, more specifically, NHPI. It is important to address more diverse cultures and measure the effectiveness of teach back. Also, it is uncertain if a long-term improvement is maintained for chronic diseases. Future studies can determine if teach back methods provide prolonged positive clinical outcomes.

METHODS

Design

Participants

NHPI patients with a confirmed hypertension ICD-10 were recruited from the rural primary care clinic. Staff participants include nurse practitioners, and medical assistants that initially provide frontline care during clinic visits. Criteria for inclusion in this QI project are: (a) participants must be of self-reported NHPI descent and (b) must have a documented hypertension International Classification of Disease or ICD-10 code. These criteria were chosen for the following reasons: NHPI is the population being studied in this project; hypertension is

the topic of concern; decreasing cultural barriers to understanding plan of care is the focus of this project. All patient identified as eligible to participate were able to read and speak English.

Setting

The setting is at Ko'olauloa Community Health and Wellness Center (KCHWC), a rural Northern Oahu primary care center. It is a private, non-profit, community-based Federally Qualified Health Center in the Ko'olauloa district of Kahuku, Hawaii. It serves vulnerable populations such as the uninsured, underinsured, poor, homeless, youth, elderly, Native Hawaiian, Pacific Islanders, immigrants, and agricultural workers. Services include acute and chronic care, immunizations, dental care, mental health counseling, minor surgery, family planning, physical exams, Native Hawaiian healing, health education, and outreach services.

There are two family nurse practitioners practicing at this clinic each with two medical assistants and a daily average between 25-35 patient visits. There are two physicians on staff, each with one medical assistant and one scribe. Daily visits range from 20-25 patients for a weekly average of 100-125.

Sample

IHI recommends starting with a small sample size to test feasibility (IHI, 2017). Convenience sampling was used to solicit patients for this intervention. This type of sampling is easy and convenient as participants are easily accessible (Etikan, 2016). It is most commonly used in settings where subjects meet inclusion criteria (Acharya, Prakash, Saxena, & Nigam, 2013). Patients entering the clinic on two chosen days with hypertension and a willingness to participate were approached about participating.

PDSA Cycle

The PDSA framework was applied to implementing an educational tool as it provides a structure for testing change and improving the quality of care. Planning the intervention includes gathering information through a needs assessment. Doing the intervention involves creating the education tools and delivering them into the clinic participants and staff. Studying involves receiving feedback from participants and evaluating how to revise the tools to better serve the purpose. Data was collected using pre- and post-intervention surveys. Acting includes implementing the necessary changes and starting the cycle over again until it becomes effective.

Intervention

Participants were identified as hypertensive with a documented ICD-10 code by the primary care physician as they arrived for check-in. These select patients were then approached in the waiting area by the primary investigator (PI) using a recruitment script (Appendix B). They were provided with education about the project, asked to participate, and given a disclosure form (Appendix C). After they agreed to participate, they were assisted into a private exam room where they were given a High Blood Pressure Questionnaire. After the questionnaires were completed and submitted to the PI, a video was shown to them on a handheld electronic tablet while the PI remained in the exam room (Appendix D). Upon video completion, participants were asked to repeat the information back to the PI. Discrepancies were resolved and information was reinforced during this time. Video content was taught back to PI a second time after resolving discrepancies for confirmation of understanding. The length of time for this portion of the intervention was approximately 15 minutes. After the intervention was concluded, patients were then seen by their primary care provider for their scheduled visit. One week later,

participants were contacted via phone and asked the same questions on the High Blood Pressure Questionnaire.

Data Collection Tools

A needs assessment was conducted through interviews with key organization stakeholders to identify and prioritize concerns regarding the educational needs among NHPI currently receiving care in the facility. The clinical liaison, four medical assistants, one physician, and one nurse practitioner were asked open-ended questions about their perception of hypertension health literacy among patients in this clinic. Pender's HBM was used to guide the pretest/posttest creation using the stakeholders' responses in order to address cultural sensitivity and patients' knowledge regarding the risk factors and management of hypertension (Appendix E). Patients entering the facility on two chosen days with hypertension and a willingness to participate received the pretest. The posttest was administered via telephone in one week. The pretest/posttest consists of true, false, or "I don't know" questions.

The intervention itself is a video created by the primary investigator. The video consists of culturally sensitive information about the risks and management of hypertension. It also incorporated NHPI traditional healing beliefs and remedies. The video was delivered via an electronic tablet at the time of the participants' scheduled clinical visits. The teach back method was initiated immediately after participants view the video.

Resources

Primary and secondary resources are needed when forming an educational intervention (Alligood, 2014). Resources are needed for the project including survey results and time needed for data collection. Time needed to implement the intervention is also an essential resource.

Reference materials such as textbooks, journal articles, and personal experience as a graduate family nurse practitioner student receiving clinical experience in this organization.

Budget

Data collection materials such as surveys were a negligible expense. Costs for paper and ink was approximately $10. The educational intervention material costs were roughly $100 in materials and resources. The PI provided the electronic tablet for video viewing purposes at no additional expense. There are no costs for soliciting participants or information. No costs were incurred for analyzing data as the surveys were collected and analyzed by the initiator.

Ethical Considerations

Beneficence

Beneficence is the act of doing good and having the welfare of research participants in mind (Haahr, Norlyk, & Hall, 2014). The goal of this project is to improve overall cardiovascular health in Native Hawaiian and Pacific Islanders in a rural community. There are no anticipated risks in this intervention. Every effort to ensure that each participant is comfortable and aware of every aspect of their involvement in the intervention. Participants answered survey questions and receiving education information that may be beneficial to their health.

Respect for Persons

It is a person's right to be treated with respect and allowed to make their own decisions. All participants were provided with information about the intervention and provided with the right to withdraw at any time. Each participant in this intervention was treated with respect and dignity. Those not able to participate with full autonomy were respected and protected from any harm or negligence during their participation in this intervention. Their right to privacy,

confidentiality, and anonymity was be upheld as data was reported as a whole rather than individually.

Justice

Justice is the participants' right to privacy and equal treatment during research (Polit & Beck, 2012). Fairness and equal rights are considered as the target population is a group of rural Native Hawaiians and Pacific Islanders that are at or below the poverty level. The chosen population has a high prevalence of hypertension. It is the hope that each participant recruited for this project can benefit in a positive way. Promoting health literacy and increasing hypertension awareness is the ultimate goal.

Data Analysis

The purpose of this project is to answer the relevant clinical question: 'Does a culturally sensitive teach back method improve hypertension awareness among Native Hawaiians and Pacific Islanders in a rural primary care clinic in Northern Oahu?' Data from the pre-tests/post-tests served as the primary source of information used for data analysis. The results from the two tests were compared to assess any changes in knowledge levels regarding hypertension risk factors, pathophysiology, and management. The number of correct answers before and after the teach back intervention determined if knowledge levels had decreased, remained the same, or improved. The percentage results of each knowledge level were analyzed using descriptive statistics. An Excel spreadsheet was used to input and present data.

The High Blood Pressure Questionnaires were completed and the video was shown to participants on September 18, 2017 and September 20, 2017. Follow up phone interviews for post-questionnaire responses took place on September 25, 2017 and September 27, 2017. The

questionnaire used 10-items in a true, false, or "I don't know" format to assess the participant's knowledge before and after participants were exposed to the culturally sensitive intervention and teach back method. The participants completed the 10-item questionnaire before the intervention and the same set of questions were asked during a phone call interview one week later. All participants completed both the pre- and post-tests and were included in the analysis. There were no questions left blank nor were there any with multiple answers.

RESULTS

Study Population

The participants consists of eight patients. Of these participants, 62.5% are women and 37.5% are men. There was no missing data. Table 1 shows the background characteristics of the study population per gender, age, and ethnicity.

TABLE 1. *Participant Demographics*

Characteristics	N participants (8)	%
Sex		
Female	5	62.5%
Male	3	37.5%
Total	**8**	**100%**
Age		
18-24	0	0%
25-34	0	0%
35-54	4	50%
55 or over	4	50%
Total	**8**	**100%**
Ethnicity		
Native Hawaiian	6	75%
Pacific Islander	2	25%
Total	**8**	**100%**

Evaluating Pre- and Post-Intervention Findings

This section provides descriptive information related to pretest and posttest results from the High Blood Pressure Questionnaire (Appendix E).

Pre-Test Results

At least 50% of the participants answered all questionnaire items correctly prior to the intervention. At pretest, 12.5% of participants believed that family history does not play a role in increasing the likelihood of hypertension. The majority of participants (87.5%) were able to correctly identify high blood pressure as a risk factor for heart disease and stroke. While 100% of the participants correctly answered questions regarding salty foods and physical exercise, only 50% were able correctly identify alcohol consumption as a risk factor for increasing blood pressure. Prior to the intervention, only 62.5% of participants were able to correctly identify increase in age as a risk factor that cannot be controlled. Furthermore, all participants have the correct knowledge that smoking is a risk factor for high blood pressure.

Post-Test Results

Post-intervention questionnaire results were obtained one week after the intervention to assess hypertension knowledge levels. Participants answered more questions correctly during the phone follow up than on the pretest. Fifty percent of the participants initially had incorrect answered about the likelihood of alcohol to increase blood pressure. It was the most improved response on the post-questionnaire at 87.5%. The level of knowledge about older age being a risk factor for hypertension showed improvement at posttest as the number of correct responses increased to 87.5% from 62.5% at pretest. Another area of knowledge improvement was family

history and its role in high blood pressure as results improved from 75% to 100% post-intervention.

Summary

The intervention was successful in improving hypertension knowledge among participants. Results showed success in increasing knowledge of hypertension with more correct answers noted during the post survey. There are five questions that showed no change in knowledge as 100% of the participants demonstrated understanding before and after the intervention. The differences in the level of knowledge in the pre- and post-questionnaires are listed in Table 2.

TABLE 2. *Pre- and Post-Intervention Questionnaire Results*

	Pre-Questionnaire			Post-Questionnaire		
Item	**True**	**False**	**Don't Know**	**True**	**False**	**Don't Know**
1. Most of the time high blood pressure has no obvious symptoms.	6 (75%)	0 (0)%	2 (25%)	8 (100%)	0 (0%)	0 (0%)
2. Smoking is a risk factor for high blood pressure.	8 (100%)	0 (0)%	0 (0%)	8 (100%)	0 (0%)	0 (0%)
3. High blood pressure is a risk factor for developing heart disease and stroke.	7 (87.5%)	1 (12.5)%	0 (0%)	7 (87.5%)	1 (12.5)%	0 (0%)
4. The more salty foods you eat, the lower your blood pressure will be.	0 (0%)	8 (100%)	0 (0%)	0 (0%)	8 (100%)	0 (0%)
5. Regular physical exercise does not help control blood pressure.	0 (0%)	8 (100%)	0 (0%)	0 (0%)	8 (100%)	0 (0%)
6. Getting older is an uncontrollable risk factor for high blood pressure.	5 (62.5%)	0 (0%)	3 (37.5%)	7 (87.5%)	1 (12.5)%	0 (0%)
7. A blood pressure of 120/80 is considered high blood pressure.	0 (0%)	8 (100%)	0 (0%)	0 (0%)	8 (100%)	0 (0%)
8. Drinking alcohol can increase your blood pressure.	4 (50%)	2 (25%)	2 (25%)	7 (87.5%)	1 (12.5)%	0 (0%)
9. Family history has nothing to do with your chance of having high blood pressure.	1 (12.5%)	6 (75%)	1 (12.5%)	0 (0%)	8 (100%)	0 (0%)
10. Being overweight can increase your blood pressure.	8 (100%)	0 (0%)	0 (0%)	8 (100%)	0 (0%)	0 (0%)

Although the study population was small, the data collected provided a wide range of responses. Comparison of the pretest and posttest results revealed that 100% of all participants have the correct knowledge in more than seven of the questionnaire items after the intervention. There was at least a 33% improvement in the correct number of responses on the post-questionnaire. Overall, the correct response rate indicates a good understanding of general hypertension knowledge. Table 3 lists the correct number of responses per items per questionnaire and percentage of improvement in correct participant responses.

TABLE 3. *Post-Intervention Correct Response Improvement*

Item	Pre-	Post-	Difference	Improvement %
1	6	8	2	33%
2	8	8	0	0%
3	7	7	0	0%
4	8	8	0	0%
5	8	8	0	0%
6	5	7	2	40%
7	8	8	0	0%
8	4	7	3	75%
9	6	8	2	33%
10	8	8	0	0%

DISCUSSION

The purpose of this project was to determine if a culturally sensitive teach back intervention would promote health literacy to enhance hypertension knowledge among Native Hawaiians and Pacific Islanders in a rural primary care clinic in Northern Oahu. A pre-test and post-test were used to collect data then analyzed with descriptive statistics. The pre-test was administered on hypertension knowledge to collect baseline data from the participants. The post-test with the same information was administered after the ‘teach back’ intervention to assess

effectiveness. Pre-test and post-test results revealed that the culturally sensitive teach back intervention showed improvement in hypertension knowledge among the participants.

The teach back intervention, developed with guidance from Pender's Health Behavior Model, provided a visual learning tool to help participants gain culturally sensitive information about hypertension. This project demonstrates that hypertension knowledge levels were lower prior to the intervention. This finding suggests that those with poor health literacy were able to show improvement. This intervention highlights some benefits of assessing patients' health literacy. Health care providers should assess the culture and health literacy level of chronically hypertensive patients and adjust education approaches accordingly.

Upon analysis of the High Blood Pressure Questionnaire in this project, prior hypertension knowledge, implementation of the intervention, and evaluation of hypertension knowledge post-intervention, there are similarities that exist in both this DNP project and previously identified literature. Despite a growing prevalence of hypertension among NHPIs, there is little research on culturally sensitive teach back methods to address health literacy and chronic diseases. It has been demonstrated through research that when patients are educated using the teach back method, their level of knowledge increases. The finding of this project is consistent with reports from Negarandeh et al. (2013) that the teach back method is effective at increasing knowledge about chronic conditions such as hypertension. The results of this project were consistent with the findings of a study by Samuels-Kalow and colleagues (2016) that reports knowledge improvement after utilizing the 'teach back' method.

Review of the literature presented in this DNP project illustrates the prevalence of hypertension among NHPIs, as well as the need for culturally sensitive educational interventions

tailored for this population. This project provides evidence that a small-scale intervention has the potential to create improvement in hypertension knowledge in a rural Northern Oahu primary care clinic. It can be implemented in a wider sample of patients using the same approach. Using the PDSA cycle allows quick testing of changes, evaluation, and refinement if needed (IHI, 2017). Primary care clinics striving to provide patient-centered care are encouraged to assess their patients' health literacy and develop culturally sensitive teaching tools to best fit their needs. Given the global prevalence of hypertension, further examination of the association between health literacy and hypertension knowledge within other populations is warranted.

The next step is to continue monitoring the intervention to sustain the increase in hypertension knowledge. Soliciting feedback from patients and introducing more culturally sensitive topics such as local foods with a high sodium content can help tailor this intervention more to the NHPI population. Addressing more in-depth information in the areas where patients already had a good knowledge base would also further increase hypertension knowledge. With enough testing, it is the hope of this investigator that improvements can be made to increase overall hypertension knowledge and improve outcomes.

Implications for Practice

This project emphasizes the need to gain better understanding of how to aid rural NHPIs in increasing their hypertension knowledge, not only for blood pressure management, but also for co-morbid conditions that could improve as a result. As the prevalence of hypertension increases, and the presence of nurse practitioners in rural primary care clinics increases, so will the demand to provide quality evidence-based care specific to the cultural needs of rural communities. Family nurse practitioners are part of the rapidly growing primary care workforce.

They have a vital role to diagnose and manage chronic conditions as well as identify the educational needs of their patients and implement culturally sensitive interventions to best meet their needs. The findings of this DNP project are particularly relevant for organizations seeking to improve health outcomes for patients with chronic conditions and poor health literacy. As we push forward into more patient-centered health care, ensuring that we are equipping our patients with the most current evidence-based teaching methods is of the utmost importance.

Study Limitations

The small sample was the main limitation of this DNP project. Participants could have easily used technological devices to research questionnaire items, which could skew results. Despite providing instructions on the questionnaire, misunderstanding or varied comprehension of the instructions could have been possible. Also, the project did not determine if improved knowledge was correlate with improve hypertension control or other disease outcomes.

Dissemination

Goals for disseminating this project include submitting a manuscript for publication in the University of Arizona and College of Nursing Dissertation Library. A copy of this project will also be submitted to a peer reviewed professional journal. A synopsis of the findings will be presented at community board meeting in Kuhuku, HI where the project was conducted. Findings will also be presented to the staff at the clinic. Additionally, findings will be compiled and presented as a poster to be displayed in the lobby at Ko'olauloa Community Health and Wellness Center.

Conclusion

Hypertension continues to be a common issue for patients, and it can lead to heart disease and poor health outcomes. This DNP project demonstrates that culturally sensitive interventions providing general hypertension information can improve knowledge among rural NHPIs. There is meaningful opportunity to improve the basic knowledge about hypertension among primary care patients. Although this DNP project is small, it suggests that health care providers are in a unique position assess health literacy and deliver education to patients in a way they understand. Ensuring that patients have an understanding about their hypertension diagnosis can play a major role in improving their outcomes. Further exploration is warranted to determine if culturally sensitive interventions or changes in standards of care could enhance hypertension knowledge among rural NHPIs in Northern Oahu.

APPENDIX A:

APPRAISAL TABLE

Authors	Research Question/Hypothesis	Study Design	Sample	Data Collection (Instruments/tools)	Findings
Ghorob (2013)	Does health coaching provide only education or more concrete support?	Systematic Review	Diabetic patients who participated in 35 studies	35 studies of diabetes education trials	Patients who set action plans reduced A1C levels more than those who only received education.
Graarup, Ferrari, & Howard (2016)	Do patient engagement and education strategies improve outcomes?	Systematic Review	200 charts of patients with pulmonary arterial hypertension	Chart review of PAH patients	Successful patient education and engagement can be achieved using the teach back method.
Griffey et al. (2015)	Does teach-back improve comprehension of ED discharge instructions?	RCT	254 patients at least 18 years old discharging from the ER	audio-recorded structured interview	Teach back methods improved post-ED discharge comprehension
Howie- Esquivel (2014)	Is a culturally sensitive teach back method effective at improving self-care and HF education in Hispanic patients?	RCT	convenience sample of 42 patients with heart failure (HF)	medical record review and questionnaires	Teach back was effective in self-care improvement and HF knowledge in a group of Spanish-speaking HF patients.
Moser et al. (2015)	What is the the association between health literacy, heart failure readmission rates and all-cause mortality in patients with heart failure living in rural areas?	RCT	575 rural patients with heart failure hospitalized within the last 6 months	patient and family interview, medical record and hospital administrative database review, healthcare provider contact, and review of death records	Poor health literacy is a risk factor for all-cause mortality among rural patients with heart failure.
Negarandeh, Mahmoodi, Noktehdan, Heshmat, & Shakibazadeh (2013)	Do pictorial images and teach back educational strategies improve knowledge, adherence to medication and diet among patients with type 2 diabetes and low health literacy?	RCT	127 patients with type 2 diabetes	two intervention groups received education within three 20-min weekly sessions	Teach back methods increased knowledge, as well as adherence to medications and diet among patients with type 2 diabetes and low health literacy

Authors	Research Question/Hypothesis	Study Design	Sample	Data Collection (Instruments/tools)	Findings
Press et al. (2012)	Does a teach back educational intervention decrease respiratory inhaler misuse in hospitalized adults with asthma or COPD?	RCT	50 hospitalized adults (age 18 years or older) with asthma or COPD	interviewer-administered surveys	Teach back methods were more effective than brief interventions in increasing inhaler use and 30-day health-related events
Samuels-Kalow, Hardy, Rhodes, & Mollen, (2016)	Do teach back methods improve communication and health literacy in the ED setting?	In-depth interviews	51 patients (31 parents; 20 patients)	Semi-structured in-depth interviews	Participants felt that teach back helped them confirm learning, avoided forgetting information, and improved doctor–patient communication.
Zullig et al. (2014)	Do interventions improve medication adherence in patients with diabetes?	Systematic Review	7 articles about medication adherence	Literature review	Interventions improved medication adherence among patients with diabetes

APPENDIX B:

RECRUITMENT SCRIPT

Hello, my name is Priscilla Austin. I am a doctoral student in the family nurse practitioner program at the University of Arizona. As part of my doctoral studies, I am conducting an educational project about how much people know about high blood pressure and you are invited to participate. This educational project is separate from the care you are receiving here at Ko'olauloa Health Center. If you agree, you are invited to participate in a brief questionnaire and video in the privacy of an exam room with a follow up questionnaire administered via telephone one week later. It is anticipated to take no more than 15 minutes of your time to complete.

Your participation is entirely voluntary; you may skip any questions that you don't want to answer. No personally identifying information is being collected.

If you have questions or would like to participate, please contact me at 228-223-5899 or paustin0221@email.arizona.edu.

Thank you for your participation,

Priscilla Austin

University of Arizona

School of Nursing

Doctoral Student

APPENDIX C:

DISCLOSURE FORM

Promoting Health Literacy among Rural Native Hawaiians and Pacific Islanders with Hypertension

Priscilla Austin

The purpose of this project is to promote health literacy by utilizing the teach back method to deliver culturally sensitive information to enhance knowledge about the risks, management, and prevention of hypertension among Native Hawaiians and Pacific Islanders in a rural primary care clinic.

If you agree, you are invited to participate in a brief questionnaire and video in the privacy of an exam room with a follow up questionnaire administered via telephone one week later. The video and questionnaire including the teach back method will take approximately 15 minutes. There are no foreseeable risks associated with participating in this project and you will receive no immediate benefit from your participation. Survey responses are anonymous.

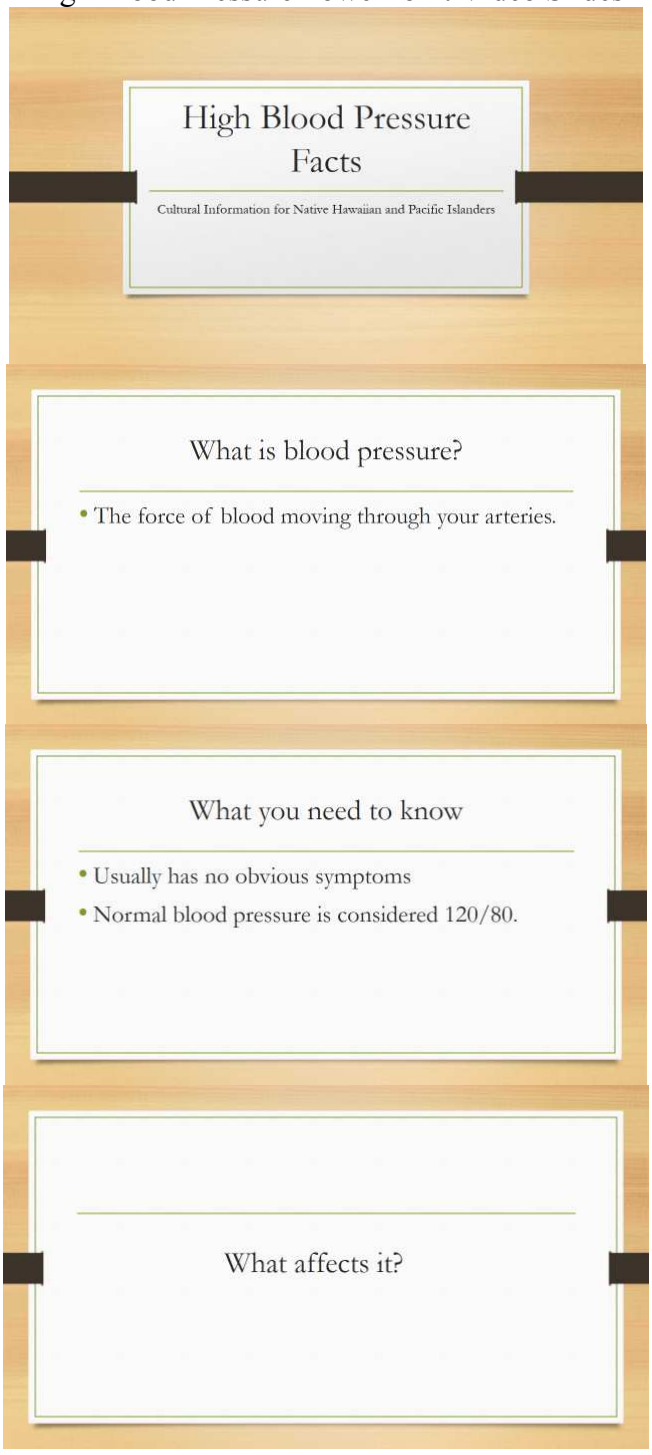
If you choose to participate in the project, participation is voluntary, refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. If you choose not to participate, it will not impact the care you receive at Ko'olauloa Health Center. You may withdraw at any time from the project. In addition, you may skip any question that you choose not to answer. For questions about your rights as a participant in this project or to discuss other project-related concerns or complaints with someone who is not part of the project team, you may contact the Human Subjects Protection Program online at http://rgw.arizona.edu/compliance/human-subjects-protection-program.

For questions, concerns, or complaints about the project, you may contact Priscilla Austin, Doctoral Student at 228-223-5899 or paustin0221@email.arizona.edu.

APPENDIX D:

HIGH BLOOD PRESSURE POWERPOINT VIDEO SLIDES

High Blood Pressure PowerPoint Video Slides



Smoking

- Smoking increases your blood pressure.

Genetics

- Some families tend to have higher blood pressure.

Salty foods

- Salty foods causes our bodies to hold extra salt and water.
- Extra liquid causes our blood pressure to go up.

Kupuna (Older age)

- As we age, changes in our arteries can increase our blood pressure.


Alcohol
• Drinking too much alcohol can increase fat levels in our blood.
Obesity
• Extra weight makes it harder for our hearts to function properly.
Cultural Management
• Maintain your lo¯kahi.
• Stress contributes to high blood pressure.


• Seek guidance through *la'au kahea.*
• Take your prescribed medication.
• *La'au lapa' au* remedies can provide healing power through plant-based treatments.
• Encourage your ohana to join you in healthy eating habits and exercise.
• Stay connected with your *huna.*
• Spiritual healing can help maintain your health.


Make sure you go to appointments with your doctor.
Mahalo Nui Loa!

APPENDIX E:

HIGH BLOOD PRESSURE QUESTIONNAIRE

High Blood Pressure Questionnaire

These questions are about high blood pressure. Please circle true or false. If you are unsure about the correct answer. Please circle "I don't know."

1. Most of the time high blood pressure has no obvious symptoms.
   a. True b. False c. I don't know

2. Smoking is a risk factor for high blood pressure.
   a. True b. False c. I don't know

3. High blood pressure is a risk factor for developing heart disease and stroke.
   a. True b. False c. I don't know

4. The more salty foods you eat, the lower your blood pressure will be.
   a. True b. False c. I don't know

5. Regular physical exercise does not help control blood pressure.
   a. True b. False c. I don't know

6. Getting older is an uncontrollable risk factor for high blood pressure.
   a. True b. False c. I don't know

7. A blood pressure of 120/80 is considered high blood pressure.
   a. True b. False c. I don't know

8. Drinking alcohol can increase your blood pressure.
   a. True b. False c. I don't know

9. Family history has nothing to do with your chance of having high blood pressure.
   a. True b. False c. I don't know

10. Being overweight can increase your blood pressure.
    a. True b. False c. I don't know

APPENDIX F:

SITE AUTHORIZATION

Date 08/30/2017

University of Arizona Institutional Review Board
c/o Office of Human Subjects
1618 E Helen St
Tucson, AZ 85721

Please note that Ms. Priscilla Austin, UA Graduate Student, has the permission of Ko'olauloa Community Health and Wellness Center to conduct research at our Ha'aula facility for her study, "Promoting Health Literacy among Native Hawaiians and Pacific Islanders with Hypertension."

Ms. Austin will discuss the project with the patients which includes a pretest and posttest and educational video. Participants will take the pretest and watch the video at the clinic. Ms. Austin will contact participants via telephone one week later for the posttest. Her plan is to have all of the interventions completed by the end of fall semester in 2017. Our human resources will provide Ms. Austin with confirmation for participants' ICD-10 hypertension codes to use in her project.

Ms. Austin has agreed to provide a copy of the University of Arizona IRB-approved determination of health form and a copy of any aggregate results.

If there are any questions, please contact my office.

Signed,

Terrence Aratani
Chief Executive Officer

APPENDIX G:

THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW BOARD LETTER

Research
Office for Research & Discovery

Human Subjects Protection Program

1618 E. Helen St.
P.O.Box 245137
Tucson, AZ 85724-5137
Tel: (520) 626-6721
http://rgw.arizona.edu/compliance/home

Date:	September 12, 2017
Principal Investigator:	Priscilla O'Nee Austin
Protocol Number:	1709797798
Protocol Title:	Promoting Health Literacy among Rural Native Hawaiians and Pacific Islanders with Hypertension
Determination:	Human Subjects Review not Required

The project listed above does not require oversight by the University of Arizona because the project does not meet the definition of 'research' and/or 'human subject'.

- **Not Research as defined by 45 CFR 46.102(d):** As presented, the activities described above do not meet the definition of research as cited in the regulations issued by the U.S. Department of Health and Human Services which state that "research means a systematic investigation, including research development, testing and evaluation, designed to contribute to generalizable knowledge".
- **Not Human Subjects Research as defined by 45 CFR 46.102(f):** As presented, the activities described above do not meet the definition of research involving human subjects as cited in the regulations issued by the U.S. Department of Health and Human Services which state that "human subject means a living individual about whom an investigator (whether professional or student) conducting research obtains data through intervention ***or*** interaction with the individual, or identifiable private information".

Note: Modifications to projects not requiring human subjects review that change the nature of the project should be submitted to the Human Subjects Protection Program (HSPP) for a new determination (e.g. addition of research with children, specimen collection, participant observation, prospective collection of data when the study was previously retrospective in nature, and broadening the scope or nature of the research question). Please contact the HSPP to consult on whether the proposed changes need further review.

The University of Arizona maintains a Federalwide Assurance with the Office for Human Research Protections (FWA #00004218).

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