

Alternative Healthcare Institute in Tai Chi Qigong

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Abstract

Compelling evidence in Alternative / Complementary Healthcare practices, such as in Tai Chi and Qigong (TCQ) studies has demonstrated consistent health improvements in population health. If the evidence can be utilized to reduce health risks and improve the health of adult population in Hawai'i, this may lead to advancing the chronic healthcare management in Hawai'i, and in turn, this may also lead to reducing billions of dollars in medical costs to treating disease. The Alternative Healthcare Institute (AHI) proposes the establishment of an AHI TCQ program based on (1), the most current evidence based research studies, (2) the evaluation of participants from an existing TCQ program, (3) feedbacks from a TCQ practitioner and local primary care providers, and (4) feedback from potential TCQ participants. The program will aim to advocate and create options for alternative healthcare practices in Hawai'i.

Keywords: Alternative / Complementary Health Care, Tai Chi, Tai Chi Quan, Taiji, Taijiquan, Qigong, Chi gong, etc.

Table of Contents

Abstract.....	2
Table of Contents	3
CHAPTER I. PROGRAM INTRODUCTION	6
1. Introduction	6
Geriatric Population	6
2. Background	7
Wellness Program	7
Tai Chi and Qigong	8
3. Needs Assessment	9
4. Alternative Healthcare Institute (AHI) in Tai Chi and Qigong (TCQ) Program	9
5. Problem Statement	10
6. Program Expected Outcomes	10
Aim 1: To Evaluate the Existing Hilo TCQ program	11
Aim 2: To Develop the AHI TCQ Program Plan	12
CHAPTER II. CONCEPTURAL FRAMEWORK, LITERATURE REVIEW, AND SIGNIFICANCE OF RURAL POPULATION HEALTH IN HAWAII	13
1. Conceptual Framework with Rationales	13
Assessment / Capacity	14
2. Comprehensive Literature Review.....	14
Data Sources	14
Key words	14
History and Origin of TCQ	15

Effects of TCQ on Health	15
Physiological and Psychological Effects of TCQ	15
Effects of TCQ on Cardiovascular and Hematological Systems ...	17
Effects of TCQ on Osteoarthritis	18
Osteopenia and Osteoporosis	18
Menopause on Women's Health	19
Effects of TCQ on Osteopenia, Osteoporosis, and Balance	20
Effects of TCQ on Mental Health	20
Cultural Competency in TCQ Dissemination	22
3. Significance of Rural Population Health in Hawai'i	23
Chronic Diseases	23
Key Findings from Underserved Populations	24
Solutions	25

CHAPTER III. PROJECT DESCRIPTION, METHODOLOGY, DEVELOPMENT AND

EVALUATION PLAN	27
1. Project Description	27
2. Methodology	28
Segment 1: Evaluation of Existing TCQ Program	28
Design, Setting, Participants	28
Data Collection, Measure	29
Segment 2: AHI TCQ Program Plan Creation and Evaluation of Plan ...	30
Program Creation, Program Evaluators	30
Data Collection	31

Data Analysis	31
Human Subjects	31
Budget	32
Limitations	32
Timeline of Project	33
CHAPTER IV. PROJECT RESULTS.....	27
CHAPTER V. DISCUSSION AND RECOMMENDATIONS	27
Need to be continued for chapter IV and V with approval.....	
REFERENCES	34
APPENDIX A IRB Application with A, B, C, D attachments.	

Practice Inquiry Project Proposal

Alternative Healthcare Institute in Tai Chi Qigong Program

CHAPTER I

PROGRAM INTRODUCTION

Introduction

Understanding the key elements that contribute to health is essential to health promotion efforts. The World Health Organization (WHO) defines that health promotion is to empower people to improve self-care (WHO, 2009). Today's cost-effective care highly advocates utilizing preventive health services to promote health (Sanchez, 2007). Doing so will greatly increase financial savings treating diseases. However, insufficient preventive services and their utilization have been recognized contributing to a lack of quality care in the current healthcare system (Sanchez, 2007). Consequentially, great financial burdens in the form of large medical bills due to late detections and treatments are substantial (HealthyPeople.gov, 2014).

Geriatric Population. According to WHO (2014), the general term for persons to be called older adults is based on the chronological age of 65 years old, at which "one can begin to receive pension benefits" (p. 1). However, the United Nations decided the "cutoff" is over 60 years of age "to refer to the older population" (WHO, 2014, p. 1). For the purpose of this project all of the terms geriatric, elderly, and older adults will be used in reference to adults over the age of 65.

Health risks and behaviors contribute to costly and prevalent chronic disorders (CDC, 2014). In 2011, about "76% of American adults did not meet recommendations for muscle-strengthening physical activity" (CDC, 2014, p. 2). In addition, national data indicated that approximately 81.6% of American adults and 81.8% adolescents did not engage in suggested physical exercise (HealthyPeople.gov, 2014). Furthermore, a lack of sufficient wellness programs for the older population will not help to reduce

health risks and chronic disorders that are costly and commonly associated with aging (M. H. Peterson, personal communication, January 5, 2014).

Background

Wellness Programs. Wellness programs are designed to encourage people to exercise, eat right, and take charge of their self-care for their long-term well-being. As the nation recognizes the importance in health care access for all, especially for underserved populations like Hawai'i, healthcare professionals know health extends far beyond the issues of healthcare access. Improving health through wellness programs has become a part of national health strategies to address key factors contributing to the most costly, preventable health issues. The enactment of the new Patient Protection and Affordable Care Act (ACA) is a national strategy to promote population health through wellness programs and provides unprecedented funds and “grants for up to five years to small employers that establish wellness programs beginning in fiscal year 2011” (KFF, 2013 p. 11).

Many established wellness programs exist today in the forms of smoking cessation services, gym memberships, weight loss programs, nutrition classes, and other lifestyle enhancement programs. The common goal of these programs is to improve health through lifestyle change and behavior modification. The ACA points out four key prevention areas, specifically including community, clinical, or public health infrastructure and trainings, suggesting wellness program settings should be aiming for community based enterprises (Mason, et al., 2014). In addition, creating wellness programs that are easily accessible and available in varied activities that accommodate different religious and cultural beliefs are also essential to population health. Furthermore, if preventative program settings are paralleled with health clinics, the paralleled settings will provide not only easy access to the general public, but will also create a culture of health that advocates the equal importance of healthy behaviors.

Tai Chi and Qigong. Tai Chi and Qigong (TCQ) are part of Traditional Chinese Medicine. TCQ have been considered complementary and alternative health practice since the last decade. Tai Chi and Qigong are similar in enhancing health by utilizing mind-body exercises that involve mental and physical activities in the forms of meditation, breathing techniques, and slow dance-like motions (Larkey et al., 2009; Jahnke et al., 2010). As a non-pharmaceutical and non-invasive approach to improve health, today both practices are well-known world-wide for restoring energy and bodily function and improving quality of life. In recent years, these practices have become popular in the United States.

The benefits of alternative health practice such as TCQ have been found to be tremendous. Evidence in TCQ research has demonstrated that TCQ can increase muscle mass, bone density, physical strength and decrease sickness, morbidity, and mortality (IITCQC, 2010). In addition, long term TCQ practice can improve overall state of well-being and quality of life (Tow, 2009). TCQ has been recognized as a moderate-intensity physical activity and it is considered a safe practice for the older population (IITCQC, 2010). According to the national guidelines for geriatric populations, it is highly recommend that people age 65 years or older participate in a 30 minute moderate-intensity activity daily (CDC, 2014).

Needs Assessment

There is a lack of sufficient TCQ programs for the aging population in Hawai'i. Currently the County of Hawai'i operates the Kaumana facility, which is located above the University of Hawai'i at Hilo, where TCQ practice is organized to practice only on Mondays (M.H. Peterson, personal communication, January 5, 2014). Presently, the program is open only to seniors over 65 years old who are familiar with basic TCQ; the operation of the program is dependent on the availability of the one person who organizes it (M.H. Peterson, personal communication, January 5, 2014). In addition, a

Physical Therapist from the Kaiser Medical facility in Hilo also teaches TCQ classes occasionally (M.H. Peterson, personal communication, January 5, 2014). A TCQ practitioner has also been teaching TCQ in Hilo, Hawai'i, but is also depending on his availability during the year (K. Yashida, personal communication, January 6, 2013). Due to the shortage of organized TCQ programs, a group of individuals have been learning and practicing TCQ weekly at a park depending on weather condition. All of the above programs, except the one which operates in the park, require fees arranging from \$30 to \$120 for attending per seasonal session (K. Yashida, personal communication, January 6, 2013).

Recognizing the benefits of TCQ in health, some private practitioners have been inviting TCQ Masters from China to teach TCQ in Hawai'i. Nonetheless, the price for ordinary people attending a Master prepared TCQ class is costly; therefore, this type of TCQ program has excluded many with a lower socioeconomic status. In addition, without proper funding and sufficient support systems from all levels, including a lack of appropriate referral system from primary care to advocate for TCQ wellness practice, the discontinuation of many TCQ programs over the years is evident.

Alternative Healthcare Institute (AHI) in Tai Chi and Qigong (TCQ) Program

Developing the AHI in TCQ practice targets reduction of health risks in Hawai'i, fulfils the national strategy pertaining to the enactment of the new Patient Protection and ACA, and endorses a culture of aging population health. The AHI TCQ is proposed to be a nonprofit organization that will feature self-perpetuating evidence based alternative and complementary healthcare practices. In supporting population's engagements in healthy lifestyles and behavior modifications, the AHI TCQ will work towards producing results that support evidence-based alternative healthcare practice. The aim of AHI TCQ is to bridge evidence-based research literature to engage the population in healthy behavior modifications to promote population health. It is hoped that the programs will ultimately progress towards reducing health risks and disorders and, in turn, reduce medical costs.

The AHI TCQ program envisions a steadily advancing program establishing health targets and monitoring how well populations' health progresses over time. In the future, it is projected that the AHI will offer several alternative practices to the aging population in Hawai'i. The purpose of this PIP project will be focused on creating the AHI TCQ program plan. The program will progress towards advocating TCQ practice and disseminating TCQ wellness program information, and ultimately developing several programs to help control healthcare costs through self-care empowerment of the wellness programs in Hawai'i.

Problem Statement

Chronic diseases are significant in Hawai'i's underserved populations and are exacerbated by the poor socioeconomic conditions and health behaviors. There is ample evidence for the importance of wellness programs to support better population health especially for the aging population. TCQ have shown to be effective in improving both physiological and psychological aspects of individual health. However, a lack of sufficient TCQ program and information regarding the type of TCQ programs, reliability of the programs, and effect of TCQ practice on population health in Hawai'i is evident. Producing evidence-based TCQ practice for improving U.S. population health can be achieved by developing TCQ program at the local level. The AHI TCQ program proposes to target the aging population in Hawai'i, aiming for improving Hawai'i's underserved population health in the long term.

Program Expected Outcomes

This Practice Inquiry Project proposes the development of the AHI TCQ program. The AHI TCQ will be a wellness program focused on the utilization of the alternative health practice such as in the TCQ practice with the geriatric population in Hawai'i. It is believed that the creation of the proposed AHI in TCQ practice will help reduce health risks and decrease preventable diseases in the aging population of Hawai'i.

The purpose of the anticipated AHI TCQ will work to improve geriatric population health by:

- 1) Disseminating the healthy and safe physical exercise information like TCQ to the adult population.
- 2) Encouraging lifestyle modification in conjunction with pharmacotherapies of medical regimen,
- 3) Supporting health risk reduction and disease prevention through wellness programs and,
- 4) Ultimately producing healthy outcomes and improving quality of life in geriatric population.

In turn it is projected that these changes will result in reduced medical costs in the long run.

Aim 1: To Evaluate the Existing TCQ program

Objective 1. Assess the characteristics of the existing TCQ program. This will include reviewing the natural components of the established program, such as setting, environmental factors, representative population, outcomes and sustainability of the program. This will help determine who will benefit from this type of program and will help formulate the AHI TCQ program plan.

Objective 2. Determine if the existing TCQ program has improved participants' overall health. Participant surveys will examine evidence of decreased hospitalization, sickness, falls, and improved participants' medical conditions, balance, physical strength, and quality of life which compared to personal health records up to two years prior to initiating the TCQ practice.

Objective 3. Identify the gaps between existing TCQ program and the research evidence to assist the development of AHI TCQ program plan.

Aim 2: To Develop the AHI TCQ Program Plan

Objective 1. Assist in advancing recognition of the benefits of TCQ practice in medical fields.

Objective 2. Develop a program plan based on findings from the evaluation of the existing TCQ program participants and significant evidence in the literature.

Objective 3. Have feasibility and quality of program development plan evaluated by a TCQ practitioner, potential TCQ participants, and potential referring primary care providers.

While it is important to recognize health risk factors and to prevent diseases, primary care is also in a perfect position to utilize strategies, wellness programs, and to take steps to empower the populations to partake in self-care. The development of the AHI TCQ program proposes to disseminate health information and wellness programs in geriatric population, which captures the concepts of health promotion and aligns with the objectives of *Healthy People 2020*, for advancing population health for all. Presenting TCQ practice in the geriatric populations of Hawai'i carries a meaningful health implication and conveys the notion of health endorsement in health participation and self-care empowerment.

CHAPTER II

CONCEPTURAL FRAMEWORK AND LITERATURE REVIEW

Conceptual Framework with Rationales

The Strategic Prevention Framework (SPF) is a 5-step program development process and was developed by the Substance Abuse and Mental Health Services Administration (SAMHSA), and evolved over the years as a guide for States and communities to establish infrastructures essential for effective and sustainable wellness programs. The framework is directed by the principles of cultural proficiency and program sustainability while emphasizing the “best practices embedded in the context of the community” (SAMHSA, 2014, p. 1). The SPF comprises five steps of development process, including Assessment, Capacity, Planning, Implementation, and Evaluation. The concepts of the model reflect four distinctive features of a) outcome-based program, b) population-level change, c) prevention across the lifespan, and d) data-driven decision-making which all support the community-based program development. This model expresses the value and interest of the AHI TCQ program. The model serves as an implementation guide to accomplish the AHI TCQ program plan development.



(SAMHSA, 2014)

Assessment and Capacity. The *Assessment* is the first step of SPF model, in which a thorough assessment including a comprehensive literature review and cultural evaluation is necessary for understanding the key elements of the program development. The strength, weakness, gaps and needs for improvement through assessment will help direct the program's implementation. In addition, the *Capacity* or the resources & readiness to support the program will be identified in the form of socioeconomic, political and cultural aspects of the program, as well as the organizational level and collaborative system. All elements may provide important information helpful to establishing the groundwork and preparing for the development of AHI TCQ program. Furthermore, based on the nature and likelihood of community settings, factors in sustaining the long-term wellness program, cultural aspects including inputs from participants and individuals across community sectors, all provide valuable resources for directing, facilitating AHI TCQ program plan development (SAMHSA, 2014).

Comprehensive Literature Review

Tai Chi was shortened from "Tai Chi Chuan" and has been translated as "internal martial art", "taiji" or "taijiquan". Tai Chi practice is believed to correct or integrate a healthy balance of yin and yang, an ancient Chinese philosophy, the opposing forces within the body (DHHS, 2010). There have been many forms of Tai Chi, but the most popular one worldwide is "Yang 24". TCQ are part of Traditional Chinese Medicine that has been practiced for centuries in Chinese culture. TCQ are considered complementary and alternative healing practices since the last century. Since the last decade, medical interest in these practices has increased tremendously in the U.S. population.

Data Sources. The literature review was performed via an online electronic search through the University of Hawai'i at Hilo Library in Academic Search Premier (EBSCO), Science Direct, Sage Premier, Google, and Google Scholar. The time period of the articles was not restricted.

Key words. The key words searched included Tai Chi, Taiji, Tai Chi Chuan, Qigong, Chi Gong, Tai Chi Qigong Exercise, Tai Chi Practice, Qigong practice, Traditional Chinese Medicine, Cardiovascular, Osteopenia, Osteoporosis, Menopause, Mental health, or Rehabilitation.

History and Origin of TCQ. Qigong originated in Chinese culture over 5,000 years ago; it has a historical root in martial art for physical combat and defense and has been evolving for centuries into a form of physical practice for improving health (Shen-Nong Limited, 2009). Qigong literally means cultivating Qi, pronounced “Chi”, and Qi is the air people breathe in and believed to be the vital energy of all life forms (O’Shea, 2003). Gong means to practice, to develop or to work on. The principle of Qigong exercise is to “dissolve blockages of energy, stimulate the blood circulation, and correct imbalance” (Schnauzer, 2006). Tai Chi is a moving form of Qigong and came into existence for the same purpose of Qigong but only 1,000 years later (Shen-Nong Limited, 2009). Today, Tai Chi and Qigong are seen as similar in enhancing health by utilizing mind-body exercises that involve mental and physical activities in the forms of meditation, breathing techniques, and slow dance-like motions (Larkey et al., 2009; Jahnke et al., 2010). As a non-pharmaceutical and non-invasive approach to improve health, today both practices are well-known world-wide for restoring energy and bodily function and improving quality of life.

Effects of TCQ on Health. Results from various TCQ studies have shown a number of health benefits in people who practice TCQ regularly. For people with chronic health conditions and risk factors, the studies have shown significant health improvements in cardiovascular disorders, hypertension, osteoarthritis, osteopenia, osteoporosis, fibromyalgia, muscular dystrophy, physical balance and function, mental depression, and peri-menopausal related health issues (Jahnke et al., 2010). In addition, various studies have demonstrated that TCQ practice can enhance cognition, immune

function, besides its ability to increase muscle mass and bone density (Tow, 2009). All of the above will help to restore physical strength and overall body functions.

Physiological and Psychological Effects of TCQ. The TCQ practice is considered a safer practice for geriatric populations (Chan et al., 2012; Wayne et al., 2007). TCQ impact health owing to a number of physiological and psychological responses to TCQ activities. The characteristics of TCQ effects include, but not limited to, a frequent shifting of weight from left leg to right leg, vice versa, which promotes circulation, lower-extremity weight bearing (Wayne et al., 2007). Secondly, TCQ practice emphasizes up-right posture maintenance to promote physical balance and stability (Wayne et al., 2007). Third, different movements require different body parts to cooperate and to execute movements accordingly to support and harmonize the movement smoothly without disturbing physical balance (Wayne et al., 2007). Fourth, through exercise, internal and external sensory and motor acuity becomes more receptive (Wayne et al., 2007). Fifth, the symmetrical movements in arms promote trunk rotation, sensory and motor responses for balance (Wayne et al., 2007). Six, the up and down movements promote joint flexibility, muscle strength, and physical balance (Wayne et al., 2007). Seven, the circular, spiraling, and flowing motions promote mental and physical responses to the physical flexibility and balance (Wayne et al., 2007). Eight, the progressive relaxation combined with moderate intensity of physical motions in TCQ might benefit behavioral rehabilitation, and contribute to a state of psychological well-being (Chan et al., 2012).

In addition, the components of mind-body exercise may be owing to more than just adding the cognitive involvement in physical activities. To define the major components involved with mindful exercise, the author Forge, in his *“The Art and Science of Mind-Body Exercise in Health & Disease”* described the mindfulness in exercise including first, a state of “non-competitive and non-judgmental introspective” psychological process that is being “process-centered versus goal-oriented” (Forge, n.d.).

Furthermore, the low-intensity movements tied with paying attention on movements combine with the main activity that centered on awareness and breathe sounds (Forge, n.d.). Moreover, self-disciplines in achieving anatomic alignment centering on spine, pelvis, and movements that are insightful and flow of one's central energy – chi or qi, all contribute to a positive psychological wellness besides functional improvements (Forge, n.d.).

Furthermore, there have been different styles in terms of religious involvements in TCQ meditation. According to their origin, the common styles are Buddhist, Taoist, Shinto, and Hindu TCQ practice (Bonifonte, 2004). Each religion holds a unique philosophy as to how each individual should function in the universe. However, they all share a common concept to achieve a balance in mind, body and spirit through TCQ exercise (Bonifnote, 2004).

All the above mechanisms of actions and components involved with TCQ exercise should contribute to one's mental, physical, muscular, skeletal, and neurological states of well-being. An improvement in TCQ practice will likely transform one's health into a better state (Wayne et al., 2007). As indicated by many studies, TCQ practice is a safe physical therapy (Chan et al., 2012; Wayne et al., 2007). TCQ should be utilized for improving the again population health.

Effects of TCQ on Cardiovascular and Hematological Systems. Cardiovascular disorders are the leading cause of morbidity and mortality worldwide (WHO, 2013). A substantial body of published research has demonstrated the health benefits of TCQ practice on cardiovascular conditions. Hypertension is a particularly common disorder in the U.S. A 30-year-follow-up Qigong study on hypertensive patients with daily Qigong practice in China has shown a 50% decrease in stroke and mortality rates (Sancier, 1995). A systematic review on Qigong studies for patients with chronic cardiac disorders indicated that Qigong exercise can be a great therapy for cardiac rehabilitation to improve individuals' overall quality of life (Chan et al., 2012). Also even a three month TCQ practice can be

beneficial; a short period of three month experimental Tai Chi study for middle-age and elderly individuals found that Tai Chi practice had not only improved participants' pulmonary functions but also improved blood lipid profile and cytokine production (Lu & Kuo, 2012). Results suggested hematological responses from the TCQ practice enhanced participants' cardiovascular status. (Lu & Kuo, 2012). This study might have revealed the essential hematological and physiological elements of TCQ therapy on cardiovascular functions. Since hyperlipidemia has been the major contributor to the cardiovascular disorders, this discovery may encourage many who are diagnosed with hyperlipidemia to start TCQ practice to improve health and the state of well-being.

Effects of TCQ on Osteoarthritis. Osteoarthritis is a common joint disorder associated with degenerative cartilage in the synovial joints and is a major debilitating medical condition in elders (Lauche et al., 2013). Individuals with osteoarthritis are impacted by joint pain, stiffness, impaired physical functions, and decreased quality of life (Lauche et al., 2013). The benefit of TCQ practice for people with osteoarthritis may include increasing muscle strength and joint flexibility thereby decreasing pain associated with joint stiffness. A recent systematic review of five randomized controlled trials in Tai Chi practice revealed evidence for a short-term improvement of osteoarthritis pain, stiffness, and physical function in participants. Strong evidence was indicated for improving physical components of quality of life (Lauche et al., 2013).

Osteopenia and Osteoporosis. Osteoporosis is a bone disorder characterized by decreased bone density and increased structural weakening of bone tissues, leading to an increased risk of bone fractures (Bethesda, 2012). Osteoporosis is characterized by cancellous boney structures that are weakened by aging, malnutrition, lack of exercise, and hormonal deficiency as result of menopause; in addition, the trabecular plates of bone can become lost, leaving an architecturally weakened structure with significant reduced bone mass (NOF, 2013). Osteopenia is a condition that bone mineral density is lower than

normal; however, the density is not as low as osteoporosis, and is differentiated by the bone densitometry as a T score between -1 to -2.5 (Karaquzel & Holick, 2010). Contributing factors to osteoporosis are countless, including individuals with a low peak bone mass, postmenopausal status., pharmacotherapy (e.g. glucocorticoids), cigarette smoking, alcohol abuse, physical inactivity, low intake of vitamin D and calcium, advanced age, certain ethnical background, family or personal history of osteoporosis or fracture, etc (Tharpe & Farley, 2009). Physical inactivity increases the risk of developing osteoporosis, and national data indicated that more than one half of American adults were physically inactive (CDC, 2005).

Osteoporosis is a silent disorder until it is complicated by fractures, which can happen following a minimal trauma (NOF, 2013). Data from the National Health and Nutrition Examination Survey indicated that 49% of U.S. population age 50 or older indicated a low bone mass, exhibiting a great risk for bone fractures (Looker, Borrud, Dawson-Hughes, Shepherd & Wright, 2012). Currently more than 40 million men and women are affected by the disorder that can be prevented and treated by some forms of exercises (Karaquzel & Holick, 2010). Of many recommendations to decrease the risk of developing osteoporosis, regular weight-bearing and muscle-strengthening exercises are highly recommended for improving physical strength, posture, and balance and for reducing the risks for fall, fracture, and their associated complications (NOF, 2013). Approximately one in every three women has osteoporosis (Tharpe & Farley, 2009). It is estimated, by the year 2020, there will be 14 million adults over age of 50 affected by osteoporosis (Lane, 2005).

Menopause on Women's Health. For women, bone loss becomes faster once menopause begins. With the onset of menopause, the rate of bone remodeling increases, manifesting the effects of the restoration imbalance (NOF, 2013). The rate of bone mineral density decrease accelerates in women at menopause and continues to progress in postmenopausal period at age 50 and older, (NOF, 2013). In

addition, lack of physical activity will further increase the risk of developing osteoporosis, which would exacerbate women's decreased bone mineral density as a result of decreased estrogen level during menopause and the postmenopausal period. Furthermore, the risk of stress-related metabolic disorders becomes increased in menopausal and physically inactive women, which may complicate women's health further (Palasuwan et al., 2011).

Effects of TCQ on Osteopenia, Osteoporosis, and Balance. TCQ practice has been known as weight-bearing and muscle strengthening exercise. Practicing TCQ can increase muscle mass, bone density, and physical balance (WorldTaiChiDay.org, 2014). TCQ practice has demonstrated the medical benefits for improving osteopenia and osteoporosis conditions, as well as women's menopausal associated osteoporosis. An 18-week randomized controlled study on body balance in elderly men with osteopenia and osteoporosis showed that the TCQ exercise has improved 80 to 84% of participants' balance task performance within the 18 weeks of study (Maciaszek et al., 2007). The 18-week study further indicated that the Tai Chi practice two times per week for 45 minutes is constructive for improving physical balance; furthermore, data concluded that because of improved state of physical balance through TCQ exercise, elders would experience less risk for fall, fracture, and their associated complications and would experience an improved state of well-being (Maciaszek et al., 2007). It is apparent that long-term weight-bearing exercise in TCQ would contribute to a better state of bone development and physical balance.

In addition, studies specified that long-term Tai Chi practitioners have a higher bone mineral density than people in the same age group with a sedentary lifestyle, suggesting long-term Tai Chi practice can help prevent osteoporosis (Wayne et al., 2007). Important findings in increasing bone density and muscle mass have brought hopes to populations especially elders and menopausal women who are at a great risk for osteoporosis (Jahnke, 2010). As evidence indicated, advocating TCQ practice

for menopausal women can be one way to reduce the risk factors and to prevent unnecessary morbidity and mortality resulting from preventable osteoporosis.

Effects of TCQ on Mental Health. Stress can cause serious health consequences and impacts lives at individual, family, and societal levels. According to the World Health Organization, by the year 2020, stress related mental health conditions may become the second leading cause of disability worldwide (WHO, 2014). Currently people with mental health disorders are generally managed with pharmacological measures, psychotherapy, or a combination of both (Zheng et al., 2014). However, the use of TCQ exercise for mind-body improvement has gradually increased in popularity (Biscontini, 2010). TCQ practice is believed to enhance mood, mental well-being due to numbers of psychological and physiological responses to the TCQ practice. According to the Tai Chi theory, the principles of Tai Chi express how energy manifests through Tai Chi movements in every body element, posture, and engagement (Frantzis, n.d.). In addition, the purpose of Tai Chi is to “rebalance” the body through “changes in mental focus, breathing, coordination and relaxation”, which all emphasize the mental involvement in the Tai Chi exercise (Abbott et al., 2006).

According to author Biscontini, in his “*The Oldest Mindful Exercise*” (2010), there were short-term and long-term benefits in Qigong practice. Immediate benefits may include an increased sense of alertness and energy, an increased sense of balance, an increased sense in feeling more flexible and stretched, an increased awareness of breath, and a decrease sense of stress (Biscontini, 2010). Of many long-term benefits, major results may include a measurable increase in ventilation perfusion rate, a decrease in blood pressure, better glucose control in individuals with diabetes, greater sense of self-efficacy, and decrease in overall stress as reflected in cortisol levels, blood pressure, and heart rate at rest (Biscontini, 2010). In addition, many testimonies from the qualitative study have indicated that the benefit of studying TCQ extends greatly beyond the physical benefits of balance, coordination, and other

exercise benefits. It involves a mind, body and spirit connection with the interrelationship of each person with the energy fields within the environment (Yang et al., 2011).

The negative impact of stress generated in the workplace is believed a common cause of staff's mental and physical exhaustion, decreased job satisfaction and productivity, and increased absences in work settings (Griffith et al., 2008). A randomized, controlled Qigong study in hospital staff demonstrated a considerable reduction of perceived stress in Qigong participants and a significant decrease of pain intensity (Griffith et al., 2008). In addition, a randomized controlled trial of Tai Chi for tension headaches found that Tai Chi offered a holistic approach to participants over conventional therapy of pharmaceutical applications, indicating the extensive treatments in headache might need to refocus to the exercise-based interventions (Abbott et al., 2006). Furthermore, a randomized, controlled study among first year student participants in Qigong study found that after 10 weeks of Qigong practice twice a week, participants showed a statistically substantial improvement in their depression, anxiety and stress scores; not only the psychometric tests showed improvement, participants' biochemical marker of stress also indicated an increase in secretion rate of salivary immunoglobulin-A, and a decrease in salivary cortisol concentrations (Chan et al., 2013). Moreover, a randomized, controlled experimental study in a community-based sample of non-demented Chinese elders showed a significant increase in brain volume and cognitive improvements elderly participants (Mortimer, 2012). This finding encourages primary care to incorporate TCQ in their medical regimen for those who are cognitively challenged or potentially become challenged and helps to recognize the value of TCQ for achieving a better result of health care.

Cultural Competency in TCQ Dissemination. As it has been established, the TCQ practice provides a powerful, easy-to-implement, cost-effective approach for the prevention and treatment of many health related concerns. To see the benefits of TCQ for the U.S. population, dissemination of TCQ

in the U.S. is essential. Replications of TCQ study in the U.S., which have also been suggested by many researchers, are necessary to see the clinical effects of the U.S. population because many studies have been originated overseas in places such as China. A longer intervention period is also necessary for increasing the power of the study results. In addition, the effectiveness of the TCQ interventions for the U.S. population may also be restricted due to cultural differences in a few factors: TCQ practice is part of the Chinese cultural heritage, Chinese are more likely to have a better understanding of TCQ, and their social norms may place participants at a greater emotional involvement to produce greater physiological and psychological effects of the TCQ practice (C. Zhang, Personal Communication, July 28, 2013). Furthermore, many TCQ studies have been limited to healthy people only, indicating findings would exclude certain populations, such as people with chronic disorders. All the above indicate that to see the benefits of TCQ practice becoming an evidence-based practice for the U.S. population with a longer period of time needs the TCQ program to be imbedded in the U.S. TCQ practice is considered a cost-effective practice and endorses health in the form of self-care participation. Developing TCQ programs can be one way to reduce risks, prevent diseases, and ultimately prevent extensive medical costs for treating diseases.

Significance of Rural Population Health in Hawai'i

Chronic diseases. Understanding the key elements in health is necessary for health promotion efforts. According to the *Association of American Medical Colleges* (2011), the State of Hawai'i has been federally designated as a medically underserved location, and Hawai'i residents are suffering a significant number of chronic disorders. Currently, about 83% of Hawai'i's adults have at least one chronic disease (Hawai'i.gov, 2011). Chronic disorders, such as cardiac diseases, hypertension, stroke, and diabetes, increase with age and the utilization of healthcare services, and are the major causes of disabilities. Chronic disorders account for 7 out of 10 deaths in the U.S. annually and cost 75 percent of

medical expenditures for more than 2.5 trillion dollars of annual expense (CDC, 2013). It is estimated the financial costs will increase to \$4.2 trillion by the year of 2023 (National Health Council, 2014).

Chronic disorders are significant in Hawai'i's underserved population and are exacerbated by poor socio-economic conditions, limited education, or mental and behavior problems. Understanding of the distribution of the cultural "norms" and societal ingredients that affect health will help to recognize the underlying issues that may affect, prevent, or challenge the development of positive opportunities, which, in turn, may lead to a better state of health for the underserved populations in Hawai'i

Key Findings from Underserved Populations. The distribution of societal ingredients that affect Hawai'i's population health can be seen in ethnicity, socioeconomic, and education level of the underserved communities. According to the State of Hawai'i Department of Health (2011), data in prevalence of the chronic diseases based on race/ethnicity, in 2008 and 2009, indicated that high blood cholesterol level as well as diabetes was more prevalent among Japanese. The native Hawai'ian had the highest rate of asthma, hypertension, and diabetes. In addition, almost half of Native Hawai'ians reported being obese (49.3%), and almost one-quarter were current smokers (22.1%).

The financial instability that impacts health and the cost of healthcare has been affecting many underserved families in Hawai'i. Lack of income equates to worse health. According to the Hawai'i State Department of Health (Hawai'i.gov, 2011), in 2008 and 2009 there was a direct association between social gradients and chronic disorders, and the lowest income groups had a higher chronic disorder rate. In addition, poverty level in Hawai'i County was reported at below 100 to 200 percent of the poverty line. All islands have significant proportions of elders in poverty, which is more than 7% across all counties. There was at least a quarter of Hawai'i's population in each county below the 200 percent poverty line, suggesting a great societal health burden exists (Hawai'i.gov, 2011). Data indicated

that Hawai'i County has the highest percentage of people aged 65 and older living in poverty (Hawai'i.gov, 2011).

Better education attainment means better employment opportunities and better income which in turn, will influence health seeking behaviors and the ability to access health care; in addition, better education is also linked to better self-care and better adherence to medical regimens (Moser & Watkins, 2008). According to the 2008, 2009 data, the state chronic disorders, based on education level, were more prevalent in people with below high school education (Hawai'i.gov, 2011). In addition, studies have shown that even among people who have good health insurance, people with a lower social economic status. (SES) and education level do not utilize health care in the same manner as those with a good SES, suggesting that disease prevention and health promotion programs need to emphasize the social determinants to address health (Moser & Watkins, 2008).

Population growth and its distribution, ethnicity, and the trends of healthcare all drive the demand for healthcare services in Hawai'i. Aging is a major factor, contributing to an increased rate of mortality, chronic conditions, and disabilities, leading to a high usage of healthcare services (CDC, 2014). The State of Hawai'i in 2008 had nearly \$112 million dollar costs of the 10,856 hospitalizations (Miyamura, 2011); among the costs, cardiac failure and pneumonia accounted for half of the hospital costs at \$31.1 and \$27.4 million respectively; respiratory problems cost about 10% at \$11 million; diabetes, including its complications, cost about 12% (\$13 million); obesity as a coexisting condition cost approximately \$10,000 more per hospitalization than cases without obesity; in 2009, Hawai'i had almost 17% of adults with four or more chronic diseases, and about 83% of adults had at least one of the chronic disorders (Hawai'i.gov, 2011).

Solutions. The above information indicates that hospitals carry the largest overall health expenditures. With an increased utilization of high-quality, community-based healthcare services, and

wellness programs that prevent and reduce health risks and preventable diseases, unnecessary hospitalizations can be reduced or prevented. As expenditures increase, future investments in community health, education, and wellness program developments would be more effective at improving survival than the investments in more medical care (Wakefield, 2011). The ACA recognizes the significance of the need for healthcare access for all, particularly for the underserved populations in Hawai'i. The reality is that the health concerns for these underserved extend beyond just a need for healthcare access. Improving health through wellness programs has become a part of national health strategies to address key factors contributing to the most costly, preventable chronic health disorders.

Promoting population health through wellness programs and providing unprecedented funds and “grants for up to five years to small companies that establish wellness programs beginning in fiscal year 2011” is one of the new approaches being taken as a result of the enactment of the new Patient Protection and ACA (KFF, 2013 p. 11). The ACA points out four key prevention areas, specifically including community, clinical, or public health infrastructure and trainings, suggesting wellness program settings should be aiming for community based enterprises (Mason, et al., 2014). Importantly, creating wellness programs and public health infrastructures that are easily accessible, offer diverse activities, and are culturally competent will lead to improving population health. This will help create a culture that endorses the value of healthy lifestyles. TCQ practice has the capacity to address many health issues that are commonly associated with aging. Establishing wellness programs like AHI TCQ at the local level would help promote better health and reduce unnecessary health costs for the aging population.

CHAPTER III

PROJECT DESCRIPTION, METHODOLOGY, DEVELOPMENT AND EVALUATION PLAN

Project Description

The plan for this Practice Inquiry Project (PIP) was presented in two segments (1) evaluation of existing TCQ Program, and (2) AHI TCQ program plan creation and the evaluation were based on content validity feedbacks from a TCQ practitioner, potential referring PCPs and possible future participants. The proposed AHI TCQ wellness program plan was established based on an assessment of an existing TCQ program. The AHI TCQ program plan development included reviewing the natural components of the existing program and its sustainability for older adults living in Hawai'i.

The evaluation of the existing program was necessary to have a better understanding of key elements to be addressed in AHI TCQ program plan development. The objectives of the evaluation consisted of, first, the characteristics of the existing program in setting, environmental components, representative population, and outcomes in physical and psychological improvements as a result of years of TCQ practice. Secondly, the gaps between the existing program and research evidence in the effectiveness of TCQ practice were identified and provided valuable information to guide the development of the AHI TCQ program plan. Third, identified other factors that might play key roles in supporting the sustainability of the existing program have helped to guide the formation of a more culturally competent AHI TCQ program targeted towards older adults in Hawai'i.

The AHI TCQ program further proposed to have its feasibility and quality of program plan to be evaluated by a TCQ practitioner, potential future AHI TCQ participants, and potential referring primary care providers (PCPs) at the local community healthcare center. This would help to improve the content validity, cultural competence, and sustainability of the program. Additionally, PCPs would have a major role in future disseminating AHI TCQ health information. Therefore, feedback provided from these

expert reviewers was utilized in program formulation. It was hoped that the inclusion of this feedback would help to ensure the success of the program plan development and to advance the recognized benefits of TCQ practice in the healthcare field.

Methodology

Segment 1: Evaluation of Existing TCQ Program

Design. The evaluation design of the existing TCQ program included a mixed methods approach. The existing TCQ program participants were given a questionnaire with both quantitative and qualitative questions. The quantitative questions utilized a Likert (1-5) scale allowing participants to rate their current experiences with the program. Additionally, the questionnaires included open ended questions to allow for themes to be identified and qualitative data to be collected.

Setting. The location of the program selected according to the preferences made by participants. The field setting represented an uncontrolled environment at where the TCQ practice took place as a usual practice location. This type of settings which was highly expected would be favorable because of its social context of time, place, and social interaction that would provide a better understood atmosphere for the program (Polit & Beck, 2012). In addition, the field setting would also make meeting more convenient for participants, which helped to increase the number of participants. Importantly, the field setting would help to elicit a natural response from participants' years of practice and their profound memories in TCQ participation.

Participants. A group of existing TCQ program participants selected for the program evaluation once the IRB application was approved. The participation was voluntary and anonymous. The inclusion criteria included female and male participants, between 55-75 years of age, with or without medical conditions, able to speak English, members of the existing TCQ program over two years, and able to complete a set of TCQ practice independently. Although the AHI TCQ program plan focused on

participants over 65, the participants for the existing TCQ program evaluation were being recruited as young as 55 to ensure an adequate sample size.

Exclusion criteria included certain medical histories such as stroke, dementia, moderate cognitive impairment, parkinson's disease, other neurologic or psychological disorders that would prohibit independent program evaluation participation, unable to walk or maintain balance without assistance, unable to speak or understand English, and severe chronic conditions that could be contraindicated for the evaluation study.

Data Collection. The project director approached the participants in person following one of the group's scheduled meeting days and times. Data collection was done by participants' answering a series of in-depth mixed methods questionnaires. However, if necessary, participants were given the option to set up individual meetings with the project director to review the questions on the questionnaire together. All participants informed that their participation was voluntary, no personal identifiers collected, and their completion of the questionnaires was considered implied consent.

Measure. Intervention recall asked participant to rate their *prior* and *after* TCQ practice experience at 1 to 5 Likert scale. The categorical variables were assigned numbers, for example: (1) hospitalization, (2) fall, (3) sickness, etc. The desire for continuing the TCQ program was measured on a 1-5 Likert scale. Additionally, qualitative feedback was measured and presented based on the frequency of occurring themes.

Segment 2: AHI TCQ Program Plan Creation and Evaluation of Plan

Program Creation. The creation of the AHI TCQ program plan began with the analysis of the data collected from the evaluation of the existing TCQ program proposed in segment 1 of the methodology. Data from the evaluation revealed aspects of the program structure, TCQ practice, social and cultural concepts, and preferences in time or location for program participants. The AHI TCQ

program plan was built upon the program findings and evidence from the literature search. Once the program plan was completed based on the data, it proceeded to be evaluated by a TCQ practitioner, potential referring PCPs and possible future participants. The completion of AHI TCQ program plan was built upon evidence found in the literature search and findings from the existing TCQ program evaluation.

Program Evaluators. A convenient sample of thirteen program evaluators was selected from a local community of Hawai'i. The feasibility of the program was evaluated by a TCQ practitioner, two primary care providers (PCPs), and ten potential future participants. Their participation was voluntary and anonymous. The TCQ practitioner was selected based on the following inclusion criteria; being a member of the existing TCQ group and having practiced TCQ for a minimum of five years. Exclusion criteria included not participating in the existing TCQ group. The inclusion criteria for the two PCPs included working in a local health clinic, practiced which involved caring for older adults, and willingness to participate in this PIP project. Exclusion criteria included PCPs not caring for older adults and not practiced within the community. The final ten evaluators included individuals who met the criteria for the AHI TCQ program plan which was being created. The inclusion criteria included being an older adult of 65 or older, had an interest in TCQ practice, resided in Hawai'i, and were willing to participate in the AHI TCQ program evaluation. Exclusion criteria included individuals under the age of 65 years, not resided in the community, and / or were uninterested in participating in the AHI TCQ program evaluation.

Data Collection. Once all of the evaluators agreed to participate in the evaluation process, a meeting was scheduled according to participation preferences made by each of the participants. The evaluation questionnaires were dispersed to these individuals on a scheduled meeting day and times. All evaluators informed that their participation was voluntary, no personal data collected, and their

completion of the questionnaires was considered implied consent. The principle investigator collected the questionnaires once they were completed. If necessary, evaluators were given the option to set up individual meetings with the principle investigator to review the questions on the questionnaire together.

Data Analysis

Due to the anticipated small sample size of evaluators, there would not be enough power in the data collected to run test to determine statistical significance of results. Therefore, data analysis included descriptive statistics for quantitative factors and the identification of underlying themes for the qualitative portion of the questionnaires.

Human Subjects

An IRB application (APPENDIX A) was submitted to the University of Hawai'i at Hilo and Hawai'i Institutional Review Boards (IRB), upon the completion and approval of this PIP proposal. The PIP was considered exempt due to the fact that participants were only asked to complete anonymous questionnaires. No identifying information collected. The questionnaires included a statement saying the completion of the questionnaire was voluntary and that the completion of the questionnaire was implied consent. Participants were given a 10 dollar gift card to a local food market as compensation for their time. This compensation was addressed in the IRB application.

Budget

The direct budget correlated with the extent of written materials printed, such as questionnaires. Compensatory gift cards for the participants in the existing TCQ program and the AHI TCQ program plan evaluators ranged from approximately \$100 to \$200 dollars depending on the number of participants recruited. Processing fees and document printing were estimated less than \$100 in total. The total expected expenditures estimated were under \$300, which was the responsibility of the project director.

Limitations

Several limitations were acknowledged and described below. The significance of TCQ on population health has been identified in the research literature; however, very few actual programs existed to show the positive effects of TCQ on population health. The existing TCQ program had only 6 participants. Results from this small sample group might not be generalizable to a larger population, a population outside of Hawai'i, or with a younger population. Additionally, the evaluation of existing TCQ program was voluntary, and this might have influenced participants' behaviors. There were some potentials for their responses to be very biased towards TCQ which might influence the validity of the evaluations as described by Hawthorne effect (Walker, 2005). Furthermore, since the variation of each individual's physical, mental, and medical conditions was different from one another, the qualitative as well as quantitative data might show variation with respect to certain physical, medical, psychological and social responses to TCQ practice. This might lead to confounding factors, such as a personal history of smoking, which might have contributed to increased rate of sickness in certain participants. Lastly, participants might have also participated in other activities that might also be beneficial or detrimental to their health. One would not be able to account for all possible covariates based on the design of this program evaluation. However, there was still great value in the feedback from these participants as long as the limitations were acknowledged.

Timeline of project

The intended timeline for the evaluation of the existing TCQ program to begin was in January or February of 2015 one month after the IRB application approved. The evaluation of the AHI TCQ program plan accomplished once the plan was established approximately in March, 2015.

CHAPTER IV

PROGRAM EVALUATION RESULTS AND
AHI TCQ PROGRAM PLAN DEVELOPMENT

In chapter IV, the results of the TCQ program evaluation will be discussed. The demographic information, physiological and psychological conditions of program participants will be presented. Results of each Aim will be discussed by examining the results of each objective under the aim. Data analysis included descriptive statistics for quantitative factors. Identification of underlying themes from the qualitative portion of the questionnaires were also analyzed.

Aim 1: To Evaluate the Existing TCQ program

Aim 1 Objective 1. Assess the characteristics of the existing TCQ program.

Results of Aim 1 Objective 1.

The Existing TCQ Program. Assessment of the existing TCQ program provided valuable information about the natural components of the established program, in setting, environmental factors, representative population, outcomes and sustainability of the program. This has helped in determining the essential elements for developing the AHI TCQ program plan.

The existing TCQ program was established five years ago by a group of individuals who had been trained in TCQ and wished to practice together regularly in a designated location. The program aimed to improve participants' TCQ techniques and to enjoy the benefits of long-term TCQ practice. Although participants have been practicing TCQ over the years, they were dependent upon a TCQ master who traveled from China to Hawai'i once a year to teach TCQ techniques. The cost of attending a master level prepared TCQ program was expensive. However, for continuously improving TCQ practice and techniques, participants have been attending the master classes every year when classes

became available. They gathered voluntarily to practice at the park once or twice a week when they were not attending the master classes.

Setting. A Hawai’ian Beach Park was utilized for TCQ practice on the Island of Hawai’i. The beautiful landscapes of the park combined with the spectacular ocean view provide the participants with a desirable, healthy environment for practicing TCQ.

Program Participants. Six individuals practiced TCQ together, but only five of them participated the program evaluation. Table 1 illustrates the participants’ demographic information collected using the program evaluation questionnaire. These participants voluntarily gathered to practice once or twice a week at a park depending the weather condition. All participants learned and practiced TCQ for more than two years (Table 1).

Table 1. Participant Demographic Information

Participants	Age	Sex	Height	BMI	Ethnicity	Occupation	Education (Degree)	Perceived Health condition
1	63	M	7’”	21.1	Caucasian Single race	Technician	Bachelor	Good
2	61	F	5’11”	18.9	Asian mixed race	N/A	College	Very good
3	67	F	5’2”	18.3	Caucasian Single race	Retired	Some college	Very good
4	62	F	4’12”	25.4	Japanese Single race	Retired	Bachelor	Very good
5	69	F	5’1”	19.1	Japanese Single race	Retired	Graduate	Very good

Results. Table 1 shows that five participants included one male and four females. Their average age was 64.4 years of age. Four participants had a BMI within normal range, and one participant’s BMI was 25.4 indicating overweight. Two were Caucasian single race, two were Japanese single race, and

one was Asian mixed race. Three of them retired, one was still working as a technician, and one did not identify occupation. All participants had a college education, and one indicated having a graduate level of education. All participants indicated having a good health.

TCQ Procedure. The TCQ was routinely performed by the participants at a Hawai’ian beach park. Qigong was performed first, followed by Tai Chi “Yang 24”, “Yang 88”, and “Tai Chi Sword 32”. All participants could complete “Yang 24”, but not all participants could perform “Yang 88” and “Tai Chi Sword” completely. After TCQ practice, discussions often took place for sharing and improving TCQ techniques.

“Yang 24” Tai Chi. There are many different forms of Tai Chi originated from the Chinese Culture, including but are not limited to, Tai Chi 5, 8, 10 movements, Yang 24, 13, 48, etc. One well-known form called “Yang 24”, consists of 24 movements. It is a simplified form of Tai Chi originated from a Tai Chi version called “Yang 88”. “Yang 24” Tai Chi has been considered a standard Tai Chi in China and is well-known worldwide.

Aim 1 Objective 2. Determine if the TCQ program has improved participants’ overall health.

Results of Aim 1 Objective 2. Participant surveys examined evidence of decreased hospitalization, sickness, falls, and improved participants’ medical conditions, balance, physical strength, and quality of life compared to personal health reports up to two years prior to initiating the TCQ practice. Participants’ health condition results prior to and after one year of TCQ practice are presented in Table 2. Participants were asked to rate the quality of health indicators with 1 being the worst and 5 being the best for health improvements after one year of TCQ practice.

Table 2: Participants’ health condition results prior to and after one year of TCQ practice (n = 5)

Pt	BP		Sick		Hosp		Fall		Pain		Sleep		Relax		Balan		Stren		Mental		QOL	
	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A
1	3	4	4	4	4	4	3	4	3	4	3	4	2	4	2	4	3	4	2	4	3	4
2	3	3	3	3	5	5	3	3	3	3	3	3	3	5	3	4	3	4	3	4	3	4
3	5	5	3	4	4	5	5	5	4	5	4	4	3	5	4	5	4	4	4	5	3	5
4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
5	3	4	4	5	N	N	N	N	5	5	4	5	3	5	4	5	4	4	5	5	4	5

Pt = Participants; BP = Blood pressure; Sick = Sickness; Hosp = Hospitalization; Fall = Fall incidence; Relax = Relaxation; Balan = Physical balance; Stren = Physical strength; Mental = Mental/Spiritual; QOL = Quality of life; B = Before; A = After; N = Not indicated.

How to Read Table 2. In table 2, participants’ personal health conditions prior (B) and after (A) one year of TCQ practice were compared. If a participant’s health condition (e.g., BP) indicated a level of 3 (B=3) before TCQ practice, but after one year of TCQ practice (A), the participant indicated a level of 4 (A=4), this means that the participant’s BP has changed from a level of 3 to a level of 4 after one year of TCQ practice. This indicates a health improvement reflected on an improved BP level after one year of TCQ practice. Otherwise, if the numbers were the same prior and after one year of TCQ (e.g., B=4, A=4), this means the health condition did not change prior and after one year of TCQ practice.

Results. Table 2 shows that sixty (60%) percent (3/5) of participants indicated no blood pressure changes after one year of TCQ practice, and 40% of participants had a 20% of BP improvement after one year of TCQ. Sixty (60%) percent (3/5) of participants indicated no change on the frequency of sickness after one year of TCQ, and 40% of participants had a 20% of health improvement. Sixty (60%) percent of participants indicated no change on the frequency of hospitalization after one year of TCQ, and 20% of participants had a 20% of health improvement after one year of TCQ and 20% of participants indicated no comment. Sixty (60%) percent of participants indicated no changes on fall

incidence after one year of TCQ, and 20% of participants had a 20% of health improvement and 20% of participants indicated no comment on fall incidence.

Sixty (60%) percent of participants indicated no change on the pain level after one year of TCQ, and 40% participants had a 20% of improvement on pain control. Sixty (60%) percent of participants indicated no change in the quality of sleep after one year of TCQ, and 40% of participants had a 20% improvement on the quality of sleep. Eighty (80%) percent of participants indicated a 40% improvement on relaxation after one year of TCQ, and 20% of participants indicated no change. Sixty (60%) percent of participants had a 20% of improvement on physical balance after one year of TCQ, and 20% had a 40% improvement and 20% indicated no change. Forty (40%) percent of participants had a 20% improvement in physical strength, and 60% participants indicated no change. Forty (40%) percent of participants had a 20% of spiritual and mental improvements after one year of TCQ, 20% participants had a 40% of spiritual and mental improvements, and 40% participants indicated no change. Sixty (60%) percent of participants had a 20% improvement in quality of life after one year of TCQ, 20% of participants had a 40% improvement, and 20% of participants indicated no change in quality of life after one year of TCQ practice.

Questionnaires Regarding TCQ Practice Results: With regard to TCQ practice, participants were queried using a twelve question survey. For questions number 1, all participants strongly agreed that “TCQ have many health benefits for the aging population”. For question number 2, all participants strongly agreed that “My TCQ practice has improved my overall health”. For question number 12, all participants strongly agreed that “I would recommend adults practice TCQ to improve health”.

Question 3: “I wish more classes were available for improving aging population health.”

Table 3. Results of Question 3

Participants	Strongly	Disagree	Neither	Agree	Strongly Agree
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	Disagree				
1					X
2					X
3					X
4				X	
5					X

As indicated in Table 3, all participants agreed and 80% (4/5) of participants strongly agreed that more TCQ classes should be available to improve aging population health.

Question 4: “TCQ practice in Hawai’i is culturally acceptable or congruent.”

Table 4. Results of Question 4

Participants	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1					X
2					X
3					X
4				X	
5					X

As seen in Table 4, all participants agreed and 80% (4/5) strongly agreed that TCQ practice in Hawai’i is culturally acceptable or congruent.

Question 5: “This TCQ program is well organized.”

Table 5. Results of Question 5

Participants	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
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1				X	
2				X	
3				X	
4			X		
5					X

Table 5 indicates that 80% (4/5) of participants agreed, 20% (1/5) strongly agreed, and 20% (1/5) neither agreed nor disagreed that the TCQ program is well organized.

Question 6: “In the beginning, TCQ was not too hard to learn as long as I practiced.”

Table 6. Results of Question 6

Participants	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1		X			
2				X	
3				X	
4			X		
5				X	

Table 6 indicates that 60% (3/5) of participants agreed, 20% (1/5) disagreed, and 20% (1/5) neither agreed nor disagreed that in the beginning, TCQ was not too hard to learn as long as practiced.

Question 7: “Once I learned, I found it was enjoyable to practice.”

Table 7. Results of Question 7

Participants	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1				X	
2					X

3					X
4				X	
5					X

Table 7 indicates that all participants agreed and 60% (3/5) strongly agreed that once TCQ were learned, participants found it was enjoyable to practice.

Question 8: “The program has helped me become better at TCQ practice.”

Table 8. Results of Question 8

Participants	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1					X
2					X
3					X
4				X	
5					X

Table 8 indicates that all participants agreed and 80% (4/5) strongly agreed that the program had helped participants become better at TCQ practice.

Question 9: “The social environment improved my TCQ practice; therefore, group TCQ practice is better than self-practice.”

Table 9. Results of Question 9

Participants	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1				X	
2					X

3			X		
4					X
5					X

The table 9 indicates that 80% (4/5) of participants agreed, 60% (3/5) strongly agreed, and 20% (1/5) neither agreed nor disagreed that the social environment improved participants’ TCQ practice.

Question 10: “This program is realistic for an average adults’ health improvement.”

Question 11: “People with some health conditions can participate in practice to improve their health.”

Table 10. Results for Question 10 and 11

Participants	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1				XX	
2					XX
3					XX
4					XX
5					XX

Table 10 indicates that all participants agreed and 80% (4/5) strongly agreed that this TCQ program is realistic for an average adults’ health improvement, and that people with some health conditions can participate to improve health.

Results of Qualitative Questionnaires. The following section presents the results of the responses participants provided in the qualitative questionnaire. Six questions were asked.

Question 1: Please describe the types of Tai Chi, Qigong practiced? How long have you been practicing? How often do you practice during a week or a day?

Table 11 Participants answers to qualitative questionnaire 1

Participants	Tai Chi (years)	Qigong (years)	Both (years)	Weekly practice/ Other
1	12	3	3	2x /per wk, 3 hr/ea
2	6	3	3	Not indicated
3	3	Not indicated	Not indicated	Not indicated
4	8	8	8	2 x /per week
5	12	12	12	2 – 4 x wkly w/ yoga

The table 11 indicates all five participants specified a minimum of three years of Tai Chi practice. Two participants indicated a maximum of twelve years of TCQ practice. One has practiced TCQ for eight years, one practiced six years of Tai Chi and three years of Qigong, and one specified three years of Tai Chi practice only. Two participants did not specify a weekly practice schedule. Two participants indicated they practiced three hours per session and two times per week. One participant practiced two to four times per week but was also involved with yoga practice.

Question 2: What do you like BEST about the Tai Chi Qigong (TCQ) practice? (Please specify before, during, and after practice).

Participants indicated “excellent excise for mind & body in short amount of time”; “friendships, getting stronger in legs”; “calm”; “lots of energy after practice”; “mind – relax, meditate, muscle strengthen”; “improving balance, mental calmness, quiets the mind, deep breathing”, as best about TCQ practice. They did not specify before, during or after practice.

Question 3: Do you believe that your cultural, social, religious beliefs have influenced you to seek Tai Chi Qigong practice? Or did Tai Chi Qigong have improved your spiritual, mental, or social aspects of well-being? How or in what ways? Please explain.

One participant indicated that there were “very positive” social and cultural aspects that influenced TCQ practice. One of the participants also expressed a “long time interest in martial arts”

especially soft style “like Tai Chi”. Two participants indicated that both questions were relevant to their TCQ practice indicating that TCQ “works both way - reinforces each once you start, after starting you want to learn more to perfect and have more benefit” One participant indicated “mindfulness improving slowly”.

Question 4: Please identify the STRENGTHS and WEAKNESSES of this program that can be improved:

The strengths participants identified included, “Practice multiple sets under guidance of a master instructor”; “cost low, friendship longer”. The weakness participants identified included, “No recognized instructor when the master instructor is in China 11 months out of one year”; “frequency - not enough practice”.

Question 5: Any suggestions for making the Tai Chi Qigong a culturally acceptable health practice for adult population in Hawai’i?

Participants stated “more education to public to recruit new students and to be included in government sponsored program”. There were also suggestions to (1) “publicize the health benefits”, (2) “need to make it more accessible”.

Question 6: What else would encourage the Tai Chi Qigong practice in Hawai’i? (Cultural capacity, socioeconomic, political, organizational level, collaborative system, setting factors, etc.)

Participants offered many ways to encourage TCQ practice including the need for “more TCQ teachers and more recognizable TCQ programs”. They also indicate the cost was an issue, “very expensive” for attending a master prepared “a college course”, which is currently not available.

Aim 1 Objective 3. Identify the gaps between existing TCQ practice and the research evidence to assist the development of AHI TCQ program plan.

In Table 12 results from the existing TCQ program and reported research on TCQ programs are compared. The existing program is compared specifically to the results from an article published by Jahnke, Larkey, Rogers, Etnier, and Lin (2010), in a systematic review of seventy-seven randomized controlled trails (RCT) published in peer reviewed journals between 1993 to 2007.

Table 12 Comparison of the existing TCQ program and published research

Elements of	Existing Program	Research Programs (AJHP)
Participants' mean age	64.4	66.3
Participants' Health	Good	Varies
Environments (practice locations)	A beach park	Indoors and outdoors
Number type of practice	Qigong, Yang 24, Yang 88, Tai Chi sword	Tai Chi 6, 8, 10 movements, Yang 24, 13, 48
Group practice together	Yes	Yes
Number of participants	6	9 -158
Length of Practice	Range 3-12 years	Range 1 mo up to 28mo.
Weekly Practice	2 – 4 times/week	2 - 4 times/week
Practice outcomes	Improved many aspects of psychological and physiological health	Improve many aspects of psychological and physiological health
Quality of life	Improved	Improved
Recommendation for TCQ implementation for improving population health	Highly advocate	Highly advocate

Results of Aim 1 Objective 3.

Both existing program and research programs have many similarities as identified elements listed in table 12, including participants' mean age, TCQ practice locations, types of TCQ practice, practice together, practice outcomes, quality of life, and recommendation for implementation in general. Of these items, research participants' health conditions were varied. Many research participants had health issues that the existing program participants did not have, such as muscular dystrophy, fibromyalgia, arthritis, etc. In the research programs indoor and outdoor were selected, but the existing program the practice

was outdoors mostly for economical concerns. Furthermore, both existing program and research program showed improvements in participants' many aspects of health and quality of life after short term and long term TCQ practice. A major difference was that the existing program indicated participants practiced a minimum of three years, versus that in research programs, the maximum number of participants' in long-term practice indicated up to 28 months. Both the existing program and research program indicated practice was two to four times per week. Another major difference in the comparison between programs was the number of participants included. In the research program, nine to 158 participants were included for studies compared to only six participants in the existing TCQ program. Lastly and importantly because of the health benefits of TCQ practice recognized from many studies, both types of programs highly suggested TCQ implementation for improving population health.

Aim 2: To Develop the AHI TCQ Program Plan

Aim 2 of the project was to develop an AHI TCQ program plan based on the evaluation of the existing program and the identification of gaps between the existing TCQ program and the research evidence. Results from Aim 2 Objectives 1- 3 are presented below.

Objective 1. Assist in advancing recognition of the benefits of TCQ practice in medical fields.

Result of Aim 2 Objective 1.

As a non-pharmaceutical and non-invasive approach to improve health, today TCQ practices are well-known world-wide for restoring energy and bodily function and improving quality of life. Results from various TCQ studies have shown a number of health benefits in people who practice TCQ regularly. For people with chronic conditions and health risks, studies have shown significant health improvements in cardiovascular disorders, hypertension, osteoarthritis, osteopenia, osteoporosis, fibromyalgia, muscular dystrophy, physical balance and function, mental depression, and perimenopausal related health issues (Jahnke et al., 2010). In addition, studies have demonstrated cognitive

and immunological enhancements besides its ability to increase muscle mass and bone density (Tow, 2009). All of which suggest that TCQ can restore physical strength and overall body functions.

Importantly, TCQ practices are considered a safer practice for geriatric populations (Chan et al., 2012; Wayne et al., 2007; Jahnke, et al., 2010). TCQ improve health owing to a number of physiological and psychological effects of TCQ including, but not limited to, a frequent weight shifting, which promotes blood circulation and weight bearing exercise; secondly, the practice emphasizes up-right posture maintenance to promote physical balance and stability; third, different body movements require different body part to cooperate, to support, and to harmonize the movement smoothly without disturbing physical balance, which all promote physical flexibility and balance (Wayne et al., 2007). In addition, through exercise, the circular, spiraling, symmetrical and flowing motions promote mental and physical responses for physical flexibility and balance, which all enhance internal and external sensory and motor acuity (Wayne et al., 2007). Furthermore, study found that the mindfulness in exercise including a state of “non-competitive and non-judgmental introspective” psychological process that is being “process-centered versus goal-oriented” (Forge, n.d., p. 2). Finally, the progressive relaxation combined with moderate intensity of physical motions in TCQ may hold the capacity beneficial to behavioral rehabilitation, contributing to a state of psychological well-being (Chan et al., 2012). All of the above suggest that TCQ exercises contribute to a positive psychological and functional well-being of the individual health which can be used for improving aging population health.

Objective 2. Develop a program plan based on findings from the evaluation of the existing TCQ program and significant evidence in the literature.

Program Plan. The AHI TCQ program is a health promotion project and will target the aging population of Hawai'i, aiming to disseminate the TCQ health information through AHI TCQ program development. Guided by the principles of cultural proficiency and program sustainability, the essentials

of the AHI TCQ program will include two phases, the TCQ health information phase (Phase 1) and TCQ activity phase (Phase 2). The dissemination of TCQ information in Phase 1 will occur by providing evidence-based TCQ health information to participants through class lectures and handouts. The evidence-based TCQ health information may include a number of health benefits for people who practice TCQ regularly, including but not limited to health improvements in people with cardiovascular disorders, hypertension, osteoarthritis, osteopenia, osteoporosis, fibromyalgia, muscular dystrophy, physical balance and function, mental depression, peri-menopausal related health issues, and cognitive and immunological health concerns. In addition, a number of physiological and psychological concepts of TCQ on health will be introduced during the Phase 1.

The program activity in Phase 2 will include the demonstration of TCQ information through the dynamic of body movements and social interactions. Phase 2 will constitute the major portion of the program activity, which may take up to two third segment of the program. The class may involve one to one (an instructor to a participant) learning activity, one to one (a participant to a participant) activity, or one to two (an instructor and two participants) learning activity, depending on the level of individual learning capacity.

Finally, though TCQ is considered as a safe practice, as with any exercise, there are some risks and precautions need to be addressed. If a participant overdid exercise, s/he may experience mild to severe sore muscles or body ache. With extreme caution, participants should be avoiding to muscle, ligament, or tendon sprains. Participants with medical conditions such as, back or leg pain, joint problems, fractures, and mild to severe sickness or infection should consult with their primary care provider or stop practice until the health condition is cleared by a professional to practice. The program policies, such as dress code and behaviors that may positively or negatively contribute to or compromise the integrity and well-being of the program and participants will be fully discussed. Individual special

needs will be facilitated or accommodated for improving the quality and quantity of program participation.

Table 13. Components of Phase 1 & Phase 2 of the AHI TCQ Program

Phase 1 TCQ Information	Phase 2 TCQ Activity
Lecture, handouts regarding Evidence-based TCQ information	TCQ dynamic of body movements
TCQ health benefits, e.g. improve physical balance, strength, energy, immune functions, reduce weight, falls, sickness, depression, etc.	Social interaction: one to one or one to two learning activity, exchange TCQ understanding, experiences, TCQ experience discussion,
TCQ physiological and psychological concepts and the importance of long term practice, health related issue, etc.	Risks, precautions to individual and social safety, policy on social behavior, individual needs facilitation, and accommodation, etc.

Setting and Scope of Program. A community center will be utilized for the initial program. Depending on the program financial stability, the program may become capable of having its own designated location for improving quality and quantity of TCQ health practice dissemination. The ideal program will be offered three times per week on Monday, Wednesday, and Friday, one to two hours per session for the first class session. However, as the program progresses and evolves, depending on participants’ physical, psychological conditions and individual preferences, the program later *can be* individualized to integrate the classes into fast, intermediate, slow levels to accommodate different levels of older adult learning needs, disabilities, or limitations. Besides class sessions, individual daily

practice is highly encouraged at least thirty minutes per day. Instructional materials, such as video or handout will be provided to help with individual learning needs.

Program Participants and Participation. Initial program will recruit fifteen to thirty participants from the general adult population of Hawai'i. Participants will include males and females with an age group of 55 to 75 years of age. Interested participants with medical conditions or functional limitations will be evaluated by their PCP prior to enrollment. A supportive social environment will be accentuated throughout class participation. Program participation or withdrawal is completely voluntary.

TCQ Procedure. The TCQ practice selected is Tai Chi "Yang 24", a well-known form which consists of 24 movements. "Yang 24" Tai Chi has been considered as a standard Tai Chi in China and is recognized worldwide. Selecting this form will assist the TCQ instructor selection because many TCQ participants who have practiced "Yang 24" for many years may potentially become the future program instructors.

TCQ Instructor. One to two TCQ instructors will be selected through advertisements. The instructor should demonstrate required competency and qualify to safely and effectively deliver the program information. The potential candidates must have to be trained by a qualified TCQ instructor to practice TCQ, especially "Yang 24", for a minimum of six months, must demonstrate a higher level of understanding of TCQ concepts and knowledge, and must be able to perform the complete set of "Yang 24" with correct movements. Potential instructors must display the compassion and patience to teach, must possess leadership quality and problem-solving skills. They must value and be capable of building a rapport with potential participants. Finally, TCQ instructors must meet health requirements including health immunizations and must have updated CPR and First Aid certifications.

Financial Aspects. Solvency and sustainability are important aspects of program development. Seeing the existing program had resources and constraints, the AHI TCQ program plans to uncover

sources of financial aid for participants, including donations from public and private parties who are interested in advocating adult population health in Hawai'i. AHI TCQ will require a small fee from participants; however, this will be a voluntarily donate at a level that is comfortable for the participants. As the program continues, research grants or program funding will be proposed for improving TCQ dissemination and the long term benefits of TCQ practice for the adult population of Hawai'i. In addition, funds will be used to bring TCQ masters, from China or mainland to continuously learn and improve techniques.

Objective 3. Have the feasibility and quality of program development plan evaluated by a TCQ practitioner, potential future AHI TCQ participants, and potential referring primary care providers.

Results of Objective 3. The program plan was evaluated by a TCQ practitioner, two PCPs, and ten potential participants. A total of twenty-three questions were answered by a TCQ practitioner, a total of nine questions were answered by two PCPs, and a total of nine questions were answered by ten potential participants (Appendix A section e). The results of these questionnaires are presented here. The evaluation results provided valuable information that may help with the revision of the AHI TCQ program plan.

Results of TCQ Practitioner Questionnaire. The practitioner strongly agreed “A TCQ program should provide a wide variety of [TCQ] information”, “A TCQ program should teach the dynamics of body movements”, “A TCQ program should encourage TCQ social interactions”, “Besides class sessions, individual daily practice (at least thirty minutes per day) should be highly encouraged”, “program participation and withdrawal should be completely voluntary”, “The TCQ program outlined should be recommended to adult learners.”

The practitioner agreed “The program methodology is logical and appropriate to encourage TCQ regulation”, “The program should recognize and facilitate individual needs”, “TCQ practice sessions

should be 3 to 4 times per week for adult learners”, “TCQ practice time should be 1 to 2 hours per session for adult learners”, “Dividing classes into different levels and sessions to accommodate individual needs, disabilities, or limitations will increase adult program participation”, “Instructional materials such as DVD, video, audio, or handouts should be offered to accommodate individual needs of participants”, “Participant age range should be between 55-75”, “Participants with functional limitations (balance, vision impairment, etc.) may be allowed to participate in the TCQ program with approval of TCQ program instructor”, “A supportive social environment should be accentuated throughout class participation”, ““Yang 24” is considered a standard Tai Chi practice and would be best if used for this program”, “Selecting “Yang 24” for the program will assist in instructor selection because many participants have practiced “Yang 24” for number of years” “One to two TCQ instructors are needed for TCQ program”, “Volunteer donations by interested private and public sources is the best method to gain financial resources to improve program quality (seeking instructors, materials, etc.)” “Requesting voluntary donations from participants may decrease program participation”.

The practitioner neither agreed nor disagreed that “A community center would the best place for adult TCQ classes” and indicated classes can be “anywhere”, “Participants with three or less stable medical conditions (high blood pressure, thyroid problems, etc.) may be allowed to participate in the TCQ program with approval of their primary care provider.” The practitioner commented on “why three conditions”, meaning if a person has only one medical condition, and it limits the person’s physical mobility, the person may still not be able to participate.

Finally, the practitioner disagreed that “A class, consisting of 20 to 30 males and female participants is best,” and commented “A maximum of fifteen” participants should be considered instead.

Results of Two PCPs Questionnaire. Results from two PCPs demonstrated all providers strongly agreed “Research shows that TCQ practice has many health benefits for the aging population,

such as decrease the risks of osteoporosis, obese, and improve cardiovascular functions and quality of life”, “Adults with functional limitations should be encouraged to participate in a form of physical activities, like TCQ, for health benefits”, “One of the benefits in TCQ program participation is to encourage adults’ social interaction, which is beneficial for adult wellness”, “Dividing classes into different levels, sessions, or hours to accommodate individual needs, disabilities, or limitations is one good way to increase adult program participation”, “Besides class sessions, individual daily practice, at least thirty minutes per day, should be highly encouraged”, “TCQ practice is one good way to improve aging population health, and I would recommend and refer people to join such a program for improving quality of life”, “I would refer patients to a TCQ practice if they have stable chronic illness such as stable angina, renal insufficiency, controlled diabetes, etc”, “I would refer patients to a TCQ practice if they have unstable chronic illness for example refractory hypertension, uncontrolled diabetes, etc.” In regards to the question that “An appropriate TCQ practice schedule for adult learners to become physically active should be 3 to 4 times per week, 1-2 hours per session”, one PCP agreed, but verbally stated “two hours may be too much for older adults”.

Results of Potential Participants. Of the ten potential participants, all participants agreed that “Research shows that TCQ practice has many health benefits for adult population”, “One of benefits in TCQ program participation is to encourage adults’ social interaction, which is beneficial for adult health”, and “Adults with functional limitations should be encouraged to participate in a form of physical activities, like TCQ, for health benefits”. Fifty (50%) percent of participants strongly agreed the above three questions. All participants agreed, 40% strongly agreed, and 10% neither agreed nor disagreed that “Besides class sessions, individual daily practice, at least thirty minutes per day, should be highly encouraged”. Ninety (90%) percent of participants agreed, 70% strongly agreed, and 10% disagreed that “Dividing classes into different levels and sessions to accommodate individual needs,

disabilities, or limitations is a great idea for increasing adult program participation”. One participant commented it is a “very good idea – newcomers sometimes feel intimidated, levels would help.” Seventy (70%) percent of participants agreed, 30% strongly agreed, 20% neither agreed nor disagreed, and 10% disagreed that “An appropriate TCQ practice schedule for adult learners to become physically active should be 3 to 4 times per week, 1-2 hours per session”. Two participants commented “Two hours is too much” for an adult learner. Ninety 90% percent of participants agreed, 60% strongly agreed, and 10% disagreed that “A community center would be a great place for adult TCQ practice”. Forty 40% of participants agreed, 40% disagreed, and 20% neither agreed nor disagreed that “Requesting voluntary donations from participants may decrease program participation”. Finally, all participants agreed and 60% strongly agreed that “I would recommend people to join such a program for improving quality of life”.

CHAPTER V

DISCUSSIONS AND RECOMMENDATIONS

The purpose of PIP was to develop the AHI TCQ program plan to assist in advancing geriatric population health by (1) disseminating TCQ information to adult population, (2) encouraging lifestyle modification in conjunction with pharmacotherapies of medical regimen, (3) supporting health risk reduction and disease prevention through wellness programs like TCQ, (4) ultimately producing health outcomes and improving adult population health. The AHI TCQ will be a wellness program focused on the utilization of the alternative health practice such as in the TCQ practice with the geriatric population in Hawai'i. It is believed that the creation of the proposed AHI TCQ practice will help reduce health risks and decrease preventable diseases and improve adult population health of Hawai'i.

In this chapter, project aims and objectives will be analyzed and discussed by examining how the framework guided the program evaluation and the development of the AHI TCQ program plan. Results will be discussed related to AHI TCQ program plan evaluation, including expected limitations and barriers for specific aims and objectives of the project. Recommendation and implication for future practice will be presented.

Discussions

Guidance of Conceptual Framework. The Strategic Prevention Framework (SPF) is a 5-step program process developed by the Substance Abuse and Mental Health Services Administration (SAMHSA). The framework is directed by the principles of cultural proficiency and program sustainability while emphasizing the “best practices embedded in the context of the community” (SAMHSA, 2014, p. 1). The framework evolved over the years as a guide for States and communities to establish infrastructures essential for effective and sustainable wellness programs. The information gathered through program evaluation, questionnaire formation and distribution, data collection and data

analysis was directed by the 5-step conceptual framework. The five-steps of the framework consisting of *assessment, capacity, planning, implementation, and evaluation*, were pursued throughout the PIP.

Guided by the principles of cultural proficiency and program sustainability for the best practice rooted in the context of the community (SAMHSA, 2014), the PIP questionnaires were formulated by *assessing* the key elements of the existing TCQ program, including the program strength, weakness, gaps, and needs for improvement in the forms of quantitative and qualitative questionnaires. The *Capacity*, or the resources and readiness to support the program, focused on identifying factors contributing to the support of the program in the form of socioeconomic, educational, political, and cultural aspects of the program.

Capacity was reflected through best practice principles. For example, the existing program was embedded in the community for a period of five years. Major factors influencing the sustainability of the program identified participants' knowledge in TCQ, their profound understanding of TCQ to health, their beliefs about the culturally congruent health practice of TCQ, and their ways of sustaining the TCQ program in the community. Based on the critical elements found from the existing program, the AHI TCQ program plan was established and integrated according to these critical components to safeguard new program development. The AHI TCQ program plan was constructed based on the critical essentials recognized from the data collected from the existing program.

Implementation occurred through the development of the AHI TCQ program plan by using an outcome-based and data-driven decision-making process, which reflected the strategic framework specified for the community-based program development. The AHI TCQ program plan was established and accomplished by comparing the existing program with results from TCQ research results to determine the best elements for the AHI TCQ plan.

Evaluation of the program plan was performed by querying a TCQ practitioner, two PCPs, and ten potential participants. The evaluation further ensured the feasibility and validity of AHI TCQ program plan. All elements in the program plan development were geared towards fulfilling the principles of the five-steps process and ensured cultural proficiency and program sustainability, which were important and necessary to maintain the program development once implementation took the place in the community of Hawai'i.

Discussion of Aim 1 Objective 1 Results. *Aim 1 Objective 1* was to assess the characteristics of the existing TCQ program about the natural components related to setting, environmental factors, representative population, outcomes and sustainability of the existing program. This aim was developed to determine the essential elements needed in AHI TCQ program plan.

Through the assessment, the characteristics of the existing TCQ program were studied, and the program was successful despite financial constraints that limited access to a structured location but the experience of practice in the public location was performed by all participants without any hesitation. This suggests the commitment of the group to practice TCQ was more important than the location being stable. Although these experienced participants were not encumbered by location, in developing the AHI TCQ, it may not be the best location for new participants who may feel embarrassed to perform at public location such as an open beach park. This has helped the AHI TCQ program plan to select a community center for the program setting location. In addition, many public locations have been recommended for seniors by the National Council on Aging to specifically provide access to initiate health and wellness programs like TCQ to improve aging population health, and such locations have been specified as hospitals, community centers, retirement settings, YMCAs and social service centers (Parkin, 2006). This advocacy for seniors' wellness from the National Council on Aging further

confirmed any location, like community center, where the older adults are mostly populated would be an ideal location for TCQ practice.

The existing program involved with a small number of participants whose average age was below sixty-five, under the age of an older adult as defined by WHO (2014). Participants were generally healthy, and 80% of their BMIs were within normal range with one participant's BMI at 25.4, indicating a slightly overweight. Forty (40%) percent of participants indicated a Caucasian single race, 40% with a Japanese single race, and 20% with an Asian mixed race. Sixty (60%) percent of participants identified themselves as retirees with 20% still working. All participants indicated they had a college education, with 20% had a graduate level education.

The characteristics of participants represented the general population of Hawai'i. According to the U.S. Census Bureau-2010 Census (2011), the populations of Hawai'i consist of a wide range of ethnicity with multitude of Eastern cultural and religious backgrounds; Hawai'i Islands' demographic regions consist of six single races and 57 multiple race groups with mostly Asian cultural backgrounds. These participants possessed the common characteristics of the population of Hawai'i, the outcomes and findings from these representatives would be applicable to a greater scale of the populations in Hawai'i.

What is different in this population compare to other potential participants targeted for the AHI TCQ is the education level. All of the existing program participants had a minimum of a college degree and possibly knew the value of exercising for health. The education level and understanding of the health benefits of TCQ may be very different in a community population in rural Hawai'i who face many health disparities including a lack of proper health education and health care. Therefore, the education component of the AHI TCQ program was emphasized and initiated by employing the Phase 1 TCQ health information dissemination to improve public and participants' TCQ health knowledge at target population.

Aging is a major factor, contributing to an increased rate of mortality, chronic health conditions, and disabilities, leading to a high usage of healthcare services (CDC, 2014). Most of participants have just begun their retirement, and their college education must have played key role in their health seeking behavior – the long-term TCQ practice. Their profound knowledge and understanding of the TCQ reflected in their continuing TCQ education and practice, which all have contributed to their ways of sustaining the program for five years. Their higher education must have positively influenced their health practice which consisted with research evidence indicated that a better education attainment means better employment opportunities and better income which in turn, will influence health seeking behaviors and the ability to access health care; in addition, better education is also linked to better self-care and better adherence to medical regimens (Moser & Watkins, 2008). All of these suggest the importance of self-care knowledge in health education when contemplating population health, promoting wellness programs, and advocating health behaviors to reduce health risks and preventable chronic disorders.

The aims of the existing program were to improve participants' TCQ techniques and to enjoy the benefits of long-term TCQ practice, versus the aim of the AHI TCQ program is to assist in advancing recognition of the benefits of TCQ practice in the community for health improvements. Therefore, the existing program is simply a practice group and has no interest in training new participants or disseminating TCQ health information benefits. In contrast, the AHI TCQ program is anticipating the dissemination of the TCQ information at community-based level in order to improve the knowledge of the benefits of TCQ on population health. Furthermore, though participants have been practicing TCQ for several years, they were dependent upon a TCQ master who traveled from China to Hawai'i once a year to teach TCQ techniques. The cost of attending a master level prepared TCQ program was expensive. The cost became an issue for some participants who were not able to attend because of the

financial obligation. This method of bringing the TCQ master from China to teach TCQ, although desirable, may decrease the availability for people who wish to learn TCQ but have socioeconomic constraints. Financial limitations impact not only TCQ practice and participation but also limit the TCQ health benefits and their dissemination as well.

Insufficient dedicated systematic programs to investigate the long-term benefits of TCQ in population health have been recognized as a major issue contributing to the limitations on the “efficacy, effectiveness and cost-effectiveness” of TCQ researches for improving TCQ dissemination, according to Peter Harmer (2014, p. 18). Because of the shortage of the long-term dedicated programs to produce consistent TCQ health outcomes, Harmer believes this should not be the excuse or justification for “governmental or non-governmental organizations to underwrite comprehensive implementation of [TCQ] for the good of the public’s health” (Harmer, 2014, p. 18). A lack of substantive data on the benefits of TCQ for adult population health calls for the need of AHI TCQ program to find ways to advocate the dissemination of TCQ information, to develop affordable and accessible TCQ wellness programs at the community-based environment for the long run, and to produce health outcomes. For the same reason, the AHI TCQ program plans to target on all sources of financial aid, including donations from public and private investors who are interested in advocating and supporting adult population health in Hawai’i. The AHI TCQ program will ask participants to voluntarily donate whatever amount that they feel comfortable giving for each session but there will be no fee requirement to participate. As the program continues and program results become evident, research grants or program funding will be proposed for improving TCQ dissemination and the long term benefits of TCQ practice for the adult population of Hawai’i.

Furthermore, the existing TCQ program recognized the health benefits of long term TCQ practice and the need for continuous learning techniques through TCQ practice. They valued continuous

practice as demonstrated by gathering voluntarily at a park once or twice a week for the past five years. For this reason, participants' knowledge about TCQ, their profound understanding of TCQ to health, and their beliefs about the culturally congruent health practice of TCQ, all have contributed to their way of sustaining the TCQ program in the community.

All participants in the existing program have learned and practiced TCQ for more than three years. Of all practice procedures, participants were able to complete Tai Chi "Yang 24". For this reason, the AHI TCQ practice selected Tai Chi "Yang 24", a well-known form which consists of 24 movements. Selecting this form will assist the TCQ instructor selection because many TCQ participants who have practiced "Yang 24" for many years may potentially become the future program instructors.

Discussion of Aim 1 Objective 2 Results. The *Aim 1 Objective 2* was to evaluate the outcomes of participants' TCQ practice of one year and to see if the TCQ practice has improved participants' overall health. Participants' overall responses of one year TCQ practice were examined by querying the participants to rate the quality of their health conditions one year prior and after of TCQ practice. The overall responses illustrated that participants indicated a 20% improvement in their health after one year of TCQ practice especially improvement in relaxation, balance, physical strength, mental health, and quality of life. Over one year TCQ practice also produced health improvements related to participants' BP, sickness, falls, and pain level. It should be noted that all participants indicated that their health was in good condition, and these health improvements indicated positive responses as a result of one year of TCQ practice.

Participant survey results illustrated an overall health improvement, and all data were consistent with the results from prior research studies suggestion that through exercise, TCQ practice has the capacity to address many health conditions that commonly associated with aging (Chan et al. 2012; Jahnke, 2010; Wayne et al., 2007). The health benefits reported first-hand by the existing program

participants support the data-driven decision to make the AHI TCQ program offer continuous practice for a long period of time.

In addition to health improvements, all participants strongly agreed that TCQ have many health benefits for the aging population, TCQ practice has improved participants' overall health, and all participants would recommend adults practice TCQ to improve health which consists with research evidence of the benefits of TCQ in population health. Furthermore, all participants wished more classes would become available for the aging population, and importantly they believed that TCQ practice in Hawai'i is culturally acceptable or congruent. They also supported that once TCQ is learned, it would be enjoyable to practice, which provides important information on the outcomes one should expect in participation. Most of the participants indicated the program and the social environment helped their TCQ practice. They believed people with some health conditions can participate to improve health and that the program is realistic for average adults to improve health. These insights about TCQ practice are consistent with prior research evidence on the benefits of TCQ practice (Chan et al., 2012; Jahnke et al., 2010; Wayne et al., 2007).

Discussion of Aim 1 Objective 3 Results. Objective 3 was to identify the gaps between existing TCQ practice and the research evidence to assist the development of AHI TCQ program plan. Substantial numbers of health benefits of TCQ practice have been published, and ample evidence to advocate TCQ for improving population health has been provided in research studies (Chan et al., 2012; Jahnke et al., 2010; Wayne et al., 2007); however, few programs explored the TCQ impact on population health and the importance of TCQ on future health implications (Harmer, 2014).

A major difference between the existing group results and the research findings was the existing program indicated participants practiced a minimum of three years and a maximum of twelve years,

versus a range of one month to 28 months in the research groups (Jahnke et al., 2010). Results from the evaluation of the program participants provided valuable first-hand qualitative and quantitative data for a minimum of one year TCQ practice, in comparison with prior research studies examined the effects of TCQ practice for a minimum of one month. Substantial outcomes were demonstrated by researchers monitoring health outcomes in programs providing one month of practice (Jahnke, 2010). With continuous practice for a longer duration, one would anticipate continued health benefits as demonstrated by participants in the existing program. Regardless of the length of the practice duration, the validity that TCQ improve population health has been established.

Both the existing program and research program indicated practice was two to four times per week. Another major difference in the comparison between programs was the number of participants included. In the research programs, nine to 158 participants were included compared to five participants involved in the program evaluations from the existing program. Lastly and importantly because of the health benefits of TCQ practice, both the existing program participants and researchers support TCQ implementation for improving population health.

Discussion of Result of Aim 2 Objective 1 To Develop the AHI TCQ Program Plan. *Aim 2 Objective 1* was to assist in advancing recognition of the benefits of TCQ practice in medical fields. As the national data indicated, currently about 81.6% of American adults and 81.8% adolescents do not meet recommended physical activities (HealthyPeople.gov, 2014). Unhealthy behaviors create health risks and contribute to costly and prevalent chronic disorders (CDC, 2014). As people age, all risk factors and unhealthy behaviors contribute to an increased rate of mortality, chronic disorders, and disabilities, leading to a high usage of healthcare services (CDC, 2014).

Today's cost-effective care advocates the utilization of preventive healthcare services and wellness programs to better health (Sanchez, 2007). By doing so, it would greatly increase financial

savings on treating diseases. Improving health through wellness programs has become a part of national health strategies to address key factors contributing to the most costly, preventable health concerns. Any effort promoting population health and reducing preventable diseases will be aligned with the national goals and affordable care act. Primary health care venues that focus on primary disease prevention and health risk reduction are at the perfect position to advocate and influence population health.

National guidelines for older adults indicated that people age 65 years or older should participate in a 30 minute moderate-intensity activity five days per week (CDC, 2014). As a non-pharmaceutical and non-invasive approach to improve health, TCQ exercise is considered a moderate-intensity activity and safer practice for adult populations (Chan et al., 2012; Wayne et al., 2007; Jahnke, et al., 2010). Currently TCQ practices are well-known for restoring energy, physical functions, and improving quality of life. A number of health benefits has been evidenced and published by previous studies and has been re-enforced by the results from participants of the existing TCQ program.

Noticeably, TCQ improve health due to a number of physiological and psychological effects including a frequent weight shifting, which promotes blood circulation and weight bearing exercise, upright posture maintenance which promotes physical balance and stability, physical cooperation to support and harmonize physical balance, which all promote physical flexibility and balance (Wayne et al., 2007). In addition, exercises in circular, spiraling, symmetrical and flowing motions promote mental and physical responses for functional flexibility and balance, which all enhance internal and external sensory and motor acuity (Wayne et al., 2007). For older adults with chronic conditions and health risks, the studies have shown significant health improvements in cardiovascular disorders, hypertension, osteoarthritis, fibromyalgia, muscular dystrophy, physical balance and function, mental depression related health issues (Jahnke et al., 2010). All the above suggest that long-term TCQ practice is

beneficial to overall state of individual health and well-being, which makes the TCQ practice unique for improving older adult population health.

Discussion of Aim 2 Objective 2 Results. *Objective 2* was to develop the AHI TCQ program plan based on findings from the evaluation of the existing TCQ program and significant evidence in the literature. *AHI TCQ program plan* was established based on the findings from the program evaluation and recommendations from the literature to disseminate the TCQ information through two phase activities. Phase 1 was focusing on teaching and disseminating TCQ health information through class seminars and PowerPoint presentations on evidence-based TCQ information. The initiation of Phase 1 plan was based on the findings identified participants' knowledge in TCQ and their profound understanding of TCQ to health, which all have contributed to sustaining their TCQ program for five years in the community.

The AHI TCQ program plan in phase 2 activity phase was focusing on teaching and demonstrating the dynamics of body movements. In phase 2, classes would involve learning and social activities between participants for exchanging ideas or learning experiences, depending on the levels of individual learners. It may take time for all participants progressing forward at a similar pace for each session. For this reason, the program planned to evolve and integrate into different levels dividing classes into fast, intermediate levels as the program progresses. This may facilitate participants' different learning capacities, limitations, or disabilities and may help individuals' continuation of learning at their own comfort pace at different levels. Facilitation of individual needs or accommodations is believed to improve the quality and quantity of program participation.

Though TCQ is considered as a safe practice, there are still some risks and precautions need to be addressed, such as extreme physical exertion. Along with the program policies, proper dress code and satisfactory social behaviors will also be emphasized to prevent injury and dissatisfaction and to ensure

the integrity and well-being of the program participation. Besides class sessions, individual daily practice is highly encouraged at thirty minutes per day.

A community center was being selected for the initial program *setting*. Depending on the program financial stability, the program planned to have its own designated location for improving quality and quantity of TCQ dissemination. The ideal program was offering three times per week on Monday, Wednesday, and Friday, one to two hours per session for the first class session.

The initial program planned to recruit fifteen to thirty participants from the general adult population of Hawai'i. This number may change when program evolved into different levels. Participants would be males and females within the range of 55 to 75 years of age. Participants' medical conditions or functional limitations must have to be cleared by their PCP prior to enrollment.

Tai Chi "Yang 24" was selected for the initial program, since it has been considered as a standard Tai Chi, selecting this form would assist with the TCQ instructor selection because many TCQ participants who have practiced "Yang 24" may become potential program instructors.

Two TCQ *instructors* will be selected through advertisement. TCQ instructors should demonstrate required competency and qualification to safely and effectively deliver the program information, should be trained by a qualified TCQ instructor, for a minimum of six months, must demonstrate a higher level of understanding of TCQ concepts and knowledge, and must be able to perform the complete set of "Yang 24" with correct movements. Potential instructors must display the compassion and patience to teach, must possess leadership quality and problem-solving skills.

Solvency and sustainability were important aspects of program development for both the existing TCQ program and AHI TCQ program. Considering the existing program had resource limitations, the AHI TCQ program planned to discover sources of financial aid for participants, including donations from public and private parties who would be interested or advocating adult population health in Hawai'i. As

the program continues, research grants or program funding will be proposed for improving TCQ dissemination and the long term benefits of TCQ practice. What seems important and has been missed by the existing program evaluation was to evaluate how many practitioners who would like to teach a program like AHI TCQ. What if all participants indicated to teach for free, and this may help the AHI TCQ a critical need in its initial program implementation.

Discussion of Aim 2 Objective 3. *Objective 3* was to have the feasibility and quality of program development plan evaluated by a TCQ practitioner, potential future AHI TCQ participants, and potential referring PCPs.

Results of A TCQ Practitioner. The evaluation from a TCQ practitioner indicated that the practitioner validated many critical elements that AHI TCQ program plan emphasized including “A TCQ program should provide a wide variety of [TCQ] information”, “Besides class sessions, individual daily practice at least thirty minutes per day should be highly encouraged”, and “The TCQ program outlined should be recommended to adult learners.”

In addition, besides the items that practitioner agreed, the practitioner neither agreed nor disagreed that “A community center would the best place for adult TCQ classes” and indicated classes can be “anywhere”. This makes sense because the practitioner is skilled in performing versus a novice practitioner may feel intimidated to perform “anywhere”. “Participants with three or less stable medical conditions (high blood pressure, thyroid problems, etc.) may be allowed to participate in the TCQ program with approval of their primary care provider.” The practitioner commented on “why three conditions”, meaning if a person has only one medical condition, and the condition restricts the person’s physical mobility, it would still be an issue for the person to practice TCQ. The number of health condition is meaningless without taking a person’s functional status into consideration. For this reason, PCP’s referral will be necessary.

Finally, the practitioner disagreed that “A class, consisting of 20 to 30 males and female participants are best”, and commented “A maximum of fifteen” participants should be considered instead. Considering the complexity of TCQ techniques and effort to become a professional practitioner, it is logical for the practitioner to think that fewer participants would be better for learning. However, the AHI TCQ program is willing to invest in more instructors to target a greater number of participants for population health.

Results of Two PCPs Questionnaire. Results from two PCPs demonstrated all providers agreed that “Research shows that TCQ practice has many health benefits for the aging population, such as decrease the risks of osteoporosis, obese, and improve cardiovascular functions and quality of life”, “Adults with functional limitations should be encouraged to participate in a form of physical activities, like TCQ, for health benefits”, etc. Among the items providers agreed, eighty –eight (88%) percent of TCQ information all providers strongly agreed. Importantly, the providers validated the AHI TCQ program and indicated they would support the program by referring the patients who may be beneficial to TCQ practice. Referring questions include, “I would recommend and refer people to join such a program for improving quality of life”, “I would refer patients to the TCQ practice if they have stable chronic illness such as stable angina, renal insufficiency, controlled diabetes, etc”, “I would refer patients to the TCQ practice if they have unstable chronic illness for example refractory hypertension, uncontrolled diabetes, etc.” In regards to the question that “An appropriate TCQ practice schedule for adult learners to become physically active should be 3 to 4 times per week, 1-2 hours per session”, one PCP commented verbally the practice session of 2 hours may be too much for some older adults. For this reason, AHI TCQ plans to offer different practice levels in the future.

Results of Potential Participants. Of the ten potential participants, all participants agreed and 50% strongly agreed that “Research shows that TCQ practice has many health benefits for adult

population”, “One of benefits in TCQ program participation is to encourage adults’ social interaction, which is beneficial for adult health”, and “Adults with functional limitations should be encouraged to participate in a form of physical activities, like TCQ, for health benefits”. The responses from these potential participants with regard to the health benefits of TCQ were consistent with the practitioner and PCPs. Ninety (90%) percent of participants agreed, 40% strongly agreed and 10% neither agreed nor disagreed “Besides class sessions, individual daily practice, at least thirty minutes per day, should be highly encouraged”. Ninety (90%) percent of participants agreed, 70% strongly agreed and 10% disagreed that “Dividing classes into different levels and sessions to accommodate individual needs, disabilities, or limitations is a great idea for increasing adult program participation”. One participant commented it is a “very good idea – newcomers sometimes feel intimidated, levels would help.” Seventy (70%) percent participants agreed, 30% strongly agreed, 20% neither agreed nor disagreed, and 10% disagreed that “An appropriate TCQ practice schedule for adult learners to become physically active should be 3 to 4 times per week, 1-2 hours per session”. Two participants commended “Two hours is too much” for an adult learner. This response is similar to the concern that the PCP had regarding the length of the practice session. Ninety (90%) percent of participants agreed, 60% strongly agreed, and 10% disagreed that “A community center would be a great place for adult TCQ practice”. Forty (40%) percent of participants agreed, 40% disagreed and 20% neither agreed nor disagreed that “Requesting voluntary donations from participants may decrease program participation”. These responses suggest that a small donation for each session would not be a financial burden to persons who wish to participate in TCQ. Finally, all participants agreed and 60% strongly agreed “I would recommend people to join such a program for improving quality of life”. There seems to be an overwhelming support for TCQ practice. The potential participants were verbally asked if they knew

about TCQ, and all of them had knowledge about TCQ, but they were never asked whether they had participated in TCQ. If they had participated in TCQ, disagreement responses may have been less.

Summary Project Outcomes. Results presented in Chapter IV illustrated all participants have shown health improvements after one year of TCQ practice. The data further specified that TCQ practice has many health benefits; participants' overall health has improved after one year of practice; in addition, all participants have indicated that they would recommend adults to practice TCQ to improve health. These results were consistent with the results from prior published researches suggesting that TCQ has the capacity to improve individuals' overall quality of life (Chan et al., 2012; Lauche, et al., 2013). Although they were only five participants voluntarily participated the program evaluation, the duration of participants' TCQ practice and the endurance of program existed in the community were outstanding. They truly resonance the benefits, value and interest of the TCQ practice from the participants. The benefits, values, and interests of TCQ in participants that have constituted major motivation for supporting the existing program were accentuated in the AHI TCQ plan in effort to sustain such a community-based program development for the long run.

Limitations. Several limitations were acknowledged and described below. The significance of TCQ on population health has been identified in the research literature; however, not many actual programs existed to show the long-term benefits of TCQ on population health, especially in Hawai'i. The existing TCQ program had only 6 participants, and five of them voluntarily participated in the program evaluation. Therefore, findings from this small sample group, due to insufficient power, would not be generalized to larger groups or a younger population in Hawai'i. Additionally, the evaluation of existing TCQ program was voluntary, and this might have influenced participants' behaviors, which potentiated participants' biased responses to influence the validity of the evaluations as described by the Hawthorne effect (Walker, 2005). Furthermore, due to the variation of each individual's physical,

mental, and medical conditions which could be different from one another, the qualitative as well as quantitative data might show variation with respect to certain physical, medical, psychological and social responses to TCQ practice. This could lead to confounding factors, such as a personal history of smoking, which could contribute to an increased rate of sickness in certain participants. Lastly, participants could have also participated in other activities, such as Yoga as one participant indicated which could have been beneficial or detrimental to their health. One will not be able to account for all possible covariates based on the design of this program evaluation. However, there is still great value in the feedback from these participants as long as the limitations are acknowledged.

Recommendations

The value of the TCQ has been suggested by numerous researches and is supported by participants in the small existing program. The benefits are related to reducing health risks through wellness programs, health promotion, health implementation, and recommendation.

Health Risks. Health risks and behaviors contribute to costly and prevalent chronic disorders (CDC, 2014). National data indicated that about 81.6% of American adults do not engage in adequate physical activity to improve health (HealthyPeople.gov, 2014). Importantly, a lack of sufficient wellness program and advocacy for improving health will not help to reduce health risks and chronic disorders that are costly and commonly associated with aging.

Wellness Programs. Wellness programs are intended to promote health through the development of healthy lifestyles for people to eat right, exercise, cultivate a healthy lifestyle, and take charge of individual self-care and long-term well-being. Improving health through wellness program development has become a part of national health strategies to address key factors contributing to the most costly, prevalent chronic diseases. The enactment of the new Patient Protection and Affordable

Care Act is a national strategy to promote population health through wellness program developments (KFF, 2013).

Health Promotion. The dissemination of TCQ information is a health promotion project. Advocating community-based health promotion project will require professional engagements in politics, economic collaboration in partnership to generate funds to support the development of the project. This is based on the fact that research studies on TCQ have been limited to small sample groups with a short period of interventions. Consequentially, many study results have been restricted to general populations, and ample evidence recommended that further research with long term effects of TCQ is necessary for TCQ to become evidence-based as an effective therapy in the medical field (Jahnke, et al., 2010; Lauche, et al., 2013; Lu & Kuo, 2012). With a long term goal of AHI TCQ program aiming at the community-based geriatric population, the program will assist in advancing recognition of the benefits of TCQ practice in medical fields.

Today, the healthcare professionals' accountability is beyond providing health services for the poor. The WHO (2009) emphasizes the importance for being involved in public-policy making and interdisciplinary collaboration, which will lead to improved health for all. Health promotion projects, like AHI TCQ wellness program, is to empower underserved population health in Hawai'i which can be accomplished through developing economic, educational and occupational mobility which will influence healthy living of the underserved in the long term (D. Pacquiao, personal communication, Dec 9, 2012). In addition, developing wellness programs and health services will also promote and encourage the prosperity of economic development for the Islands of Hawai'i. This will eventually contribute to the transformation of population health.

Cultural Competency. Regarding the cultural competency, TCQ practice can be traced back to 5,000 years ago in Eastern culture (Shen-Nong Limited, 2009). Although TCQ started as combat and

defense, it has been evolving along with Eastern medicine also known as Traditional Chinese Medicine, historical roots, and religious events to this day for improving health (Bonifonte, 2004). The TCQ practice in Hawai'i is considered as culturally congruent as indicated by all participants. To further solidify this concept, some participants suggested that "it works both ways" in that TCQ practice "reinforces" what people believed in and also helps people "to learn more to perfect"... in which participants believed these concepts were applicable to the cultural aspect of TCQ practice in Hawai'i.

According to the U.S. Census Bureau-2010 Census (2011), Hawai'i Islands' demographic regions consist of six single races and 57 multiple race groups with mostly Asian cultural backgrounds. The populations of Hawai'i demonstrated a wide range of ethnicity with multitude of Eastern cultural and religious backgrounds, this explains why TCQ practitioners believed that TCQ practice would be a culturally competent health practice and beneficial to the population health. Cultural competency could potentiate the program sustainability of TCQ on the Island of Hawai'i once the AHI TCQ program is established.

Health Implication. Those participants who engaged in TCQ practice more than one year had apparent beneficial effects to their physiological and psychological well-being. Their first-hand results indicate through practice, TCQ has the capacity to address health concerns commonly associated with aging. Due to small sample group and short-duration of intervention period, many research results have been limited to the general populations (Chan et al., 2012; Harmer, 2014; Jahnke, et al., 2010). Establishing wellness programs like AHI TCQ at the community- level can help promote not only better health and reduced unnecessary health risks for the aging population, but also help encourage alternative evidence-based TCQ in medical field as an effective therapy with a longer period of intervention. Therefore, by bridging evidence-based research literature to engage the population in healthy lifestyle modifications to promote population health, the AHI TCQ program through dissemination of TCQ

health information at the community-level provides long-term health implication at a much greater population scale.

Recommendations. Through the assessment, the characteristics of the existing TCQ program were studied, including cultural competency and program sustainability. The existing TCQ program was successful despite financial constraints, limitations to access a structured location. The experience of participants in TCQ allowed them to perform in the public location, suggesting the commitment of the group to practice and their profound knowledge in TCQ to sustain such a program in the community in a period of five years. The evaluation outcomes carried out a considerable amount of first-handed TCQ information, which are valuable, meaningful and beneficial to the aging population health in Hawai'i. All factors have been taking into consideration in developing the AHI TCQ program plan. The AHI TCQ program plan was further evaluated by three branches of individuals making the program a more feasible and much greater extent for dissemination at the community-level.

Chronic diseases are significant in Hawai'i's underserved populations and are exacerbated by the poor socioeconomic conditions and health behaviors. There is ample evidence for the importance of wellness programs to support a better population health. TCQ practice is recognized as having many health benefits to the aging population. The evaluation of the existing TCQ program illustrated many encouraging health outcomes that have been identified by prior researches and consistent with their results. In addition, TCQ practice had improved participants' overall health, and that TCQ practice should be recognized for improving adult population health in Hawai'i. Based on the study results of the existing program, the benefits that AHI TCQ program can offer to a community are enormous. All data should lead to support the dissemination of TCQ information for improving adult population health. All will ultimately gear wards advancing recognition of the benefits of TCQ practice in medical fields.

The future of the healthcare is that if alternative practices, like TCQ, can help improve and transform health, it is the responsibility of primary care professionals to investigate, analyze, advocate, collaborate, construct, or create these opportunities. Primary care providers are equipped with advanced nursing science, leadership skills, and the capacity to address significant healthcare concerns in analytical and scholarly ways and can adopt broad system perspectives to positively impact community health environment. A thorough assessment to determine what works best in establishing holistic and individualized care is essential for any community, family, or individual. Being open minded to all possibilities is key to unlocking solutions to problems. Though TCQ is part of Traditional Chinese Medicine, when it combined with the Western medicine, it may become a unique solution that is culturally competent and practical to transforming the aging population health in Hawai'i.

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