DEVELOPMENT OF PROACTIVE PRACTICAL TEAM AND HYPERTENSIVE PERSONS MODEL TO CONTROL BLOOD PRESSURE BY USING SKT-2 IN A COMMUNITY

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A THESIS SUBMITED IN PARTIAL FULFILLMENT
OF THE REQUIREMENT FOR
THE DEGREE OF DOCTOR OF PUBLIC HEALTH
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY
2012

Thesis
entitled

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ACKNOWLEDGMENTS

With profound gratitude and sincerity, I with to acknowledge the following people, with whose help, advice, corporation, moral support and prayer power, this would not have been completed.

First, my deepest gratitude goes to Associated Professor Dr. Somporn K. Traimchaisri, Prof. Dr. Siroj Sorajjakool and Assistant Professor Dr. Kitiphong Harncharoen, my thesis advisors, examination committee and experts who took time to pose challenging questions, comments, criticism and encouragement that enabled me to finish writing this research.

For the administration of Kae rai district health promotion hospital in Kratumban District, I am profoundly grateful for opportunity to further my studies. I own staff nurses and health official at Kae rai district health promotion hospital, the 24 hypertensive patients and 12 village health volunteers who participated in this thesis. To them, my deep appreciation can be never be adequately expressed.

Finally, special thanks go to the funder, The Higher Education Commission, Thailand, my mother, sister, brother and dear friend for their prayers, inspiration and consultant encouragement for my success.

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ABSTRACT

This study was conducted to explore the factors related to using the SKT-2 technique to control blood pressure and determine appropriate intervention to control blood pressure in the community. It emphasizes community participation to develop a proactive practical team and a model to control blood pressure. The Kae Rai district community in Samut Sakorn was selected as the pilot setting. There were 3 phases of study including 1) preparation of the participants in the community, 2) implementation through model development, and 3) monitoring and evaluation. Qualitative and quantitative methods were utilized to develop the proactive practical team and the model to control blood pressure. Descriptive and inferential statistics were used for the quantitative data analysis and content analysis was used for the qualitative data analysis.

Barriers to the SKT-2 practice included personal discipline, inadequate knowledge of disease and perceived disease severity, lack of appreciation of perceived advantage, time and physical limitations, non-supportive relationships, and lack of appropriate teaching media. The facilitators included perceived benefit, good discipline, improved health, good social support, participants trusting instructors, good relationships, and good time management. The study also involved development of guidelines on practice and monitoring of the SKT-2 technique. After a 2 month trial, the study found that participants, including 24 hypertensive persons and 14 health care providers, recorded significantly reduced systolic and diastolic blood pressure among hypertensive individuals ($F(1.39, 31.89) = 12.08$, $p = .001$; and $F(2, 46) = 14.323$, $p = .000$). However, knowledge and attitudes of both groups before and after were not significantly different. This model improved blood pressure control and was convenient to apply in any location, without limitations of cost and equipment.

This study suggests that the Ministry of Public Health should establish a policy of collaborative models between communities and municipal health promotion agencies. The model serves as an example of community-based programs facilitated by proactive practical teams. Capacity building and proactive team building and partnership facilitate sustainability. This study was supported by the Commission on Higher Education.

KEY WORDS: HYPERTENSION/ PROACTIVE PRACTICAL TEAM/ THE SKT-2 TECHNIQUE/ MEDITATION HEALING EXERCISE

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การพัฒนาทีมปฏิบัติการสุขภาพเชิงรุกและรูปแบบการควบคุมความดันโลหิตของผู้ความดันโลหิตสูง โดยใช้เทคนิคสมาธิเพื่อการเยียวยา THE SKT-2 ในชุมชน

DEVELOPMENT OF PROACTIVE PRACTICAL TEAM AND HYPERTENSIVE PERSONS MODEL TO CONTROL BLOOD PRESSURE BY USING THE SKT-2 IN A COMMUNITY

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คณะกรรมการที่ปรึกษาวิทยานิพนธ์: สมพร กันทรดุษฎี เตรียมชัยศรี, Ph.D., ศิโรจน์ โสรัจจกุล, Ph.D., กิติพงษ์ หาญเจริญ, Ph.D.

บทคัดย่อ

การศึกษาวิจัยนี้มีวัตถุประสงค์เพื่อค้นหาปัจจัยที่เป็นอุปสรรค และสนับสนุนการฝึกเทคนิค เพื่อการเยียวยา SKT-2 และพัฒนารูปแบบการควบคุมความดันโลหิตของผู้ความดันโลหิตสูง โดยใช้SKT-2 ในชุมชน ต.แคราย จ.สมุทรสาคร ขั้นตอนการวิจัยมี 3 ขั้นดังนี้ 1) เตรียมความพร้อมแก่ชุมชน 2)ปฏิบัติการ:พัฒนาทีมปฏิบัติการสุขภาพเชิงรุกและรูปแบบการควบคุมความดันโลหิต 3) ติดตามและประเมินผล การวิจัยใช้วิธีการวิจัยเชิงคุณภาพและปริมาณในการเก็บ และวิเคราะห์ข้อมูล

ผลการศึกษาพบว่า 1) มีการสร้างทีมปฏิบัติการสุขภาพเชิงรุกและรูปแบบการควบคุมความดันโลหิต 2) อุปสรรคในการฝึก SKT-2 คือวินัยส่วนบุคล; ขาดความรู้เกี่ยวกับโรค; การรับรู้ความรุนแรง; การรับรู้ประโยชน์; ไม่มีเวลา;มีอาการทางกายหลังฝึก;สัมพันธภาพระหว่างครูฝึกและ สื่อการสอน 3) สิ่งสนับสนุนการฝึก SKT-2 คือ รับรู้ประโยชน์; วินัยดี; สุขภาพดีขึ้น; การสนับสนุนทางสังคมดี;เชื่อมั่นในครูฝึก;และจัดการเวลาได้ดี, 4) มีการพัฒนาคู่มือการฝึก SKT-2 และการติดตามการฝึกของผู้ป่วยที่บ้านม, 5) ผลความดันโลหิตหลังการฝึก 2 เดือนพบว่ากลุ่มผู้ป่วย 24 คนมีค่าความดันโลหิต ซีสทอลิต และไดแอสทอลิต ลดลงอย่างมีนัยสำคัญทางสถิติ ($F(1.39, 31.89) = 12.08$, $p = .001$; และ $F(2, 46) = 14.323$, $p = .000$) กลุ่มเจ้าหน้าที่ 12 คน มีคะแนนเฉลี่ยความรู้และทัศนคติก่อนและหลังไม่แตกต่างกัน. รูปแบบการควบคุมความดันโลหิตนี้สามารถลดความดันโลหิตในผู้ป่วยได้โดยไม่มีข้อจำกัดการใช้ในเรื่อง สถานที่ เวลา ค่าใช้จ่าย และอุปกรณ์ การศึกษานี้ประสบผลสำเร็จในการเป็นชุมชนนำร่อง เพื่อให้เกิดประโยชน์สูงสุดและความยั่งยืนจึงควรใช้รูปแบบนี้ในชุมชนที่มีบริบทคล้ายกัน งานวิจัยนี้ได้รับการสนับสนุนทุนจากสำนักงานคณะกรรมการการอุดมศึกษา

คำสำคัญ : ความดันโลหิตสูง / ทีมปฏิบัติการสุขภาพเชิงรุก /เทคนิคสมาธิเพื่อการเยียวยา / SKT- 2 TECHNIQUE.

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CHAPTER I
INTRODUCTION

Background and Rationale

Hypertension is an important public health problem in both developed and developing countries, including Thailand (JNC VI, 1997: 2421-2423). In developed countries such as the United States, 28 % of persons 20 years of age and older were reported to have hypertension in 1999-2000 (Health, United States, 2002). In Thailand, hypertension is considered a major public health problem. The morbidity rate related to hypertensive diseases reported by Ministry of Public Health from 1995 to 2000, increased from 118.43 to 259.02 per 100,000 of population, while the mortality rate increased from 10.3 to 24.5 per 100,000 population from 1998 to 2001 (Bureau of Health Policy and strategy, MOPH, 2001: 107-182).

The World Health Organization estimates the worldwide prevalence of hypertension at 1 billion individuals. It is the leading cause of death worldwide, accounting for 7.1 million deaths annually (World Health Organization [WHO], 2002 cited by Chobanian et al., 2003: 1206). Hypertension increases the of coronary artery disease and stroke which are also significant causes of morbidity and mortality. The American Heart Association (2004) predicts that coronary artery disease and stroke will be the leading cause of death and disability worldwide by 2020. In the United States coronary heart disease and stroke are the first and third leading causes of death, respectively (CDC 2009). Hypertension is a main risk factor for coronary artery disease and stroke and its control can lead to significant reductions in the rates of both conditions.

In 2008, hypertension and cardiovascular disease caused 15,596 deaths in Thailand or 24.7 per 100,000 people, compare to 24.3in 2007; 24.4 in 2006; 29.2 in 2005; and 34.8 in 2004(Bureau of Health Policy and Strategy, MOPH, 2010). Puavilai et al. reported the prevalence of hypertension among adults between the ages of 20 to 69 years to be 22.1% in a rural district in Samut Sakorn province in Central Thailand (2011). The Thailand Ministry of Public Health 2007 have been reported on chronic diseases surveillance reported 22,809 per 100,000 population in Samut Sakorn province, ranking it 15th highest among Thailand provinces.

Severity of Hypertension

Uncontrolled blood pressure causes increased morbidity from damage to end organs, resulting in coronary artery disease, stroke, congestive heart failure, renal insufficiency and peripheral vascular disease (Tobin, 1999 cited by Nopplub, 2001).The nature of hypertension is that it often remains asymptomatic until pathologic changes occur in vital organs: heart, brain, kidney, and retina, in response to vascular damage (World Health Organization, 1998: 48.) Thus, hypertension is referred to as a "Silent Disease" or "Silence Killer." High blood pressure is a significant risk factor for cardiovascular disease, stroke, congestive heart failure, and peripheral vascular disease, especially in long-term uncontrolled blood pressure patients (JNC VI, 1997: 2421-2423). Conversely, well-controlled hypertensive disease significantly reduces the risk of developing complications from end organ damage. A reduction of systolic and diastolic blood pressure by 10-12 mmHg and 5-6 mmHg, respectively, is associated with a 38% decrease in incidence of stroke and a 16% reduction in incidence of coronary artery disease (Swales, 1999: 231-237). Public health efforts have been focused on raising awareness and mitigating the affects of hypertensive disease, in order to reduce the severity of disease and the incidence of complications.

Controlling of blood pressure

Controlling of blood pressure is goal of treatment of hypertension in order to reduce the incidence complications and their associated mortality and morbidity. Administering highly effective medications and the practice of good self-care behaviors are two important factors of hypertension control. The practice of good self-care behaviors includes encouraging the continuity of medication taking, consuming a healthy diet with moderated salt intake, and avoiding other cardiovascular disease risk factors such as smoking, drinking alcohol, coffee and tea. Other important blood pressure controlled include managing stress and following regular physician appointments (National Institutes of Health, 1997).

Controlling hypertension requires awareness of disease factors to avoid and reduce disease complications. Empowering hypertensive patients with the means to participate actively in controlling their hypertensive disease through daily life activities can lead to improved outcomes. Higher rates of uncontrolled hypertension have been reported in older age groups, individuals from low socioeconomic status and low education. In the United States high blood pressure control rates increased from 10% to 34% from 1976 to 2000. The low hypertension control rates are attributed to lack of awareness and lack of or inadequate treatment. In Thailand, the Third National Health Examination Survey (2010) reported that 30% of hypertensive individuals where aware of their diagnosis, 24% had been treated and only 9% had their blood pressure controlled. Access to adequate health care resources and life style modification were important factors in the control of hypertension in the community.

Proactive practical team

The behavioral model to define measures to improve hypertension control highlights the impact of the patient-clinician relationship in motivating hypertensive patients to compliant and to adopt healthy lifestyle changes. The concept of a

proactive practice team has been introduced a key component of an effective health team. The proactive team consists of an assembled team of nurses and other health care providers with the responsibility to care for and manage specific patient health issues. They function to provide education and support to help patients achieve their health goals. Empathy and trust are positive factors in patient motivation and are enhanced when clinicians are considerate of cultural differences and belief systems of the patient. Clear communication between the clinician and patient ensures that appropriate blood pressure goals are established and medication effectiveness is closely monitored. It remains incumbent on the clinical team to provide clear and effective instruction and guidance to patients in order to achieve good high blood pressure control.

An ineffective clinical team can be a major barrier to achieving medical goals. Interventions that do not provide adequate preparation and supplies to health care can erode patient trust and compliance. Additionally, interventions that do not consider the context of the patient and their community, may lack relevance and thus be ineffective in achieving blood pressure reduction goals. Thus, it is critical for community-based programs to include a well-prepared proactive and patient-centered team of clinicians in order to improve patient outcomes and health care access (Daisy Hill Case Study). In addition, a proactive team will facilitate communication of strategic targets, milestones and progress to assure continued intervention compliance by patients (Vassie, 1998).

Several studies have reported on high blood pressure control measures involving communitywide programs, however no method has been universally effective (Kaplan, Greenfield, and Ware, 1989; Kotchen, McKean, and Jackson- 1986; Krishan, Brennan, and Nobrega, 1979).Most hypertension control regimens use pharmacologic interventions, which can reliably treat high blood pressure, although they may present problems related to adverse medication affects and medication compliance. Moreover, the economic costs of long-term hypertension management and treatment can be a significant burden for developing countries. Thus, health care providers and hypertension patients seek effective and safer treatment alternatives that are cost-effective and convenient. (Barriers, CDC). Previous interventions have relied

on education and pharmacologic interventions but neglected to engage patients with modalities that encourage and motivate them to be active participants in their own recovery. Mind-body therapies, like SKT, integrate the mental, spiritual and physical capacity in individuals, to address the multi-factorial causes of chronic diseases and produce more sustainable results.

Mind and body therapies: SKT techniques

There are many reports that demonstrate the effectiveness of mind and body therapies and alterative-self healing techniques to control high blood pressure. Studies by Eisenberg et al, (1993) and Linden and Chambers, (1994) reported significantly reduced blood pressure among participants in intervention that applied mind and body techniques such as meditation, relaxation, biofeedback, stress management and other psychological non-pharmacologic treatments. Mind and body therapies can have significant influence on human health and behavior to positively effect health outcomes, particularly with chronic diseases. A study of older African Americans (Schneider, et al. 1995) found that hypertensive patients randomized to a 3-month trial of transcendental meditation showed significant reductions in systolic and diastolic pressure compared with a group who practiced progressive muscle relaxation and a control group who received hypertension control education.

In a study by Shapiro et al., (1997), significant reductions in medication requirements were achieved in hypertensive patients randomized to a 6-week multi-component cognitive-behavioral intervention that included temperature biofeedback, progressive muscle relaxation, and stress and anger management therapies. Moreover, mind and body therapies have also been shown to have a direct effect on cardiovascular functioning. Recitation of prayer and yoga mantras were found to decrease respiratory rates, systolic and diastolic blood pressure, and transcranial blood flow (Bernardi, et al., 2001). Despite these positive findings, however, there are still

no large-scale trials directly comparing mind and body therapies with either self-monitoring of blood pressure or exercise, diet, and weight-loss interventions.

SKT techniques

Since 1997 mind and body therapies, particularly the various meditation techniques have been researched and applied in Thailand, for the control of chronic diseases. The Somporn Kantaradusadee Triamchaisri (SKT) is a mind-body intervention developed in 1994,that has been used to effectively treat hypertension and other chronic diseases. This technique has demonstrated benefits for treating chronic diseases such as cancer, diabetes mellitus, pain relief, HIV-AIDS patient, and hypertension (Krachangdan, 1998; Pilasorn, 1998; Setakasikorn, 1998; Mekwiwatanawong, 2000; Ampunsiriratana2003).The main advantages of the technique, other than its effectiveness, include, the lack of requirement for equipment or instrumentation and ease of performance. The technique requires little time to perform effectively, although a consistent practice is necessary to achieve results. Further SKT is also suitable to practice in any location for example, the home or at a workstation.

Setting and Situation of hypertension controlled

The data from hypertensive outpatients in the Kae rai district health promotion hospital, Kratum ban district, Samut Sakorn Province showed a rise in the number of diagnosed individuals from 214 to 237 cases from 2009 to 2010.This corresponds with data from the entire Kratumban district, which showed rising hypertension incidence from 1,263 to 2,393 cases between 2008 to 2010. Moreover, essential hypertension is the most prevalent chronic disease in Kratum ban district, which has brought it to the attention of public health officials throughout Thailand.

Due to the importance of hypertension, Samut Sakorn provincial health office and Kratum ban district health office have established local projects and programs to control hypertension such as screening and surveillance among high risk groups aged thirty-five years or more; focusing specifically programs to modify behavior and lifestyle. SKT technique is recognized as one such technique by the provincial health office and the Kratum ban district health office. They have encouraged health care provider training in SKT techniques, as an innovation that integrates mind and body through controlled breathing training and meditation. Moreover, officials at Kratum ban district health office have suggested that the existing hypertension therapies lack a clear practical methodology to control blood pressure and may not be relevant to their hypertensive target group. Thus, there is a need for a new approach that is appropriate to the target group, is affordable and is easily accessible.

Although the district health promotion hospital has provided the health care providers to participate the SKT training project, there remains a significant issue in long-term maintenance and follow-up among the trained staff and the hypertensive patients. Kae rai district health promotion hospital has participated in the project and is the site of the pilot study to apply SKT techniques to control blood pressure. Accordingly, the district health office and the officers at the Kae rai district health promotion hospital have been encouraged to establish a proactive support team and clear guidelines for supporting person with hypertension.

Thus, it is essential to explore factors that are barriers and facilitators associated with blood pressure control among persons with hypertension and health care providers. This will facilitate development of more appropriate interventions for improving patient self-monitoring of blood pressure control within the community through the application of SKT techniques. The results from this study will help persons with hypertension, nurses and health care providers understand and apply this intervention to support blood pressure control in communities.

Conceptual Framework

This present study will use part of the Chronic Care Model (CCM) construct, a conceptual framework, which will develop intervention for controlling blood pressure among hypertensive person. As shown in Figure 1, the important elements that are relevant to this study include activated patient and a proactive practice team. Patients will be activated to improve their self-monitoring of blood pressure controlled by using SKT-2 technique. Additionally they will be provided them with self-management tools such as home blood pressure monitors, and will be instructed to set goals and monitor their progress via behavioral counseling. Health care providers will establish proactive practical teams and guidelines to facilitate optimal hypertension controlled for hypertensive persons. Components of this study's interventions are organized around these two-elements to promote patient self-monitoring and providers' adherence to establishing supportive teams. The process of this study starts by focusing on what characterizes a productive interaction, and then specifies what things need to be improved in order for that productive interaction to occur. In productive interactions, hypertensive persons are given enough time to explain what concerns them the most. There is an assessment not only of their clinical status, but also of their knowledge and understanding of their disease conditions. Clinical management is evidence-based and tailored by a stepwise protocol. Treatment goals are set through a collaborative process, broken down into smaller segments that are manageable for hypertensive persons. Potential barriers are overcome with problem solving and a shared plan is developed. Finally, an explicit and sustainable follow-up plan is defined, which includes direct contact by the health care team at mutually agreeable intervals. To facilitate the project, researchers require informed, activated hypertensive persons and health care providers who can commit to setting up proactive teams. Hypertensive persons who are activated and informed are supported to have the motivation, information, skills of SKT technique practice, and confidence to effectively make decisions about their health and how to manage it and incorporate it into day-to-day life.

Hypertensive persons are helped to understand enough about the disease process and to realize their central role as daily self-managers. Family and caregivers are engaged in patients' care. To facilitate all of this during visits, the practice team is supported by the system to have the patient information, the people, equipment, and time required to deliver evidence- based clinical management and self-management support.

The rationale for selecting the Chronic Care Model as the conceptual framework is as follows. First, hypertension is a chronic disease, which is treated largely in the primary care settings. Second, the Chronic Care Model includes elements of health care delivery that involve the health care provider, the patient, and the environment in which patient care occurs. In this way the model addresses the multilevel, multi-factorial nature of hypertension control. Finally, the existence of numerous training tools and manuals on the essential elements of Chronic Care Model, including clinical decision-support, will ensure the diffusion and sustainability of this study's interventions.

The conceptual framework in the context of the Chronic Care Model involves a productive interaction between the two key elements, an informed activated patient and a prepared proactive practice team. Each group undergoes in depth interviews to identify key information to guide the development of effective interventions for controlling blood pressure. The outcome from the health care provider interviews leads to creation of proactive practice team that can respond to the needs of hypertensive patients and set interventions to control hypertension. The outcome from the patient interviews was a clear definition and understanding of interventions to control blood pressure and achieve better outcomes. The framework emphasizes the continued interaction between hypertensive patients and the healthcare workers as manifest through the on-going monitoring process throughout the intervention.

Proposed Conceptual framework

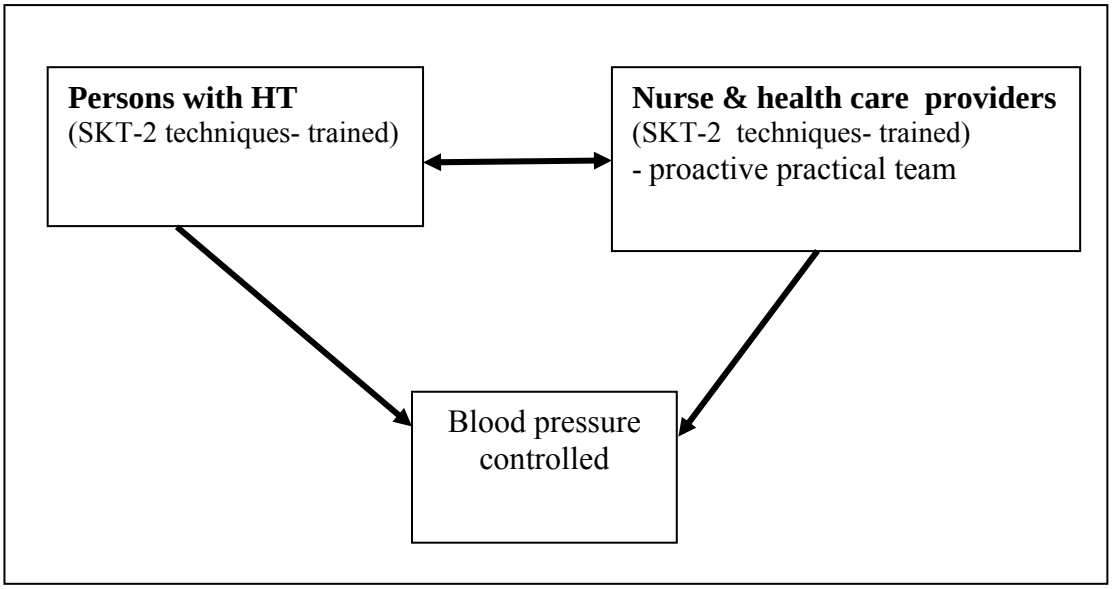


Figure 1.1 Conceptual framework

The process of this study starts with in-depth interviews with two groups of participants (health care providers and hypertensive persons) to explore factors that are barriers and facilitators of using SKT-2 technique to control blood pressure. Then the researcher will cooperate with study participants to set up proactive practice teams and clear guidelines that incorporate the results of exploration of barriers and facilitators of SKT-2 technique application to control blood pressure. This step will involve an integrated focus group process. The team will then develop specific interventions for blood pressure control to improve self-monitoring of blood pressure control. The final step of the process involves monitoring and checking blood pressure levels. The degree of hypertension and medication adherence will be assessed by using quantitative quasi-experimental (pre-posttest) methods.

This prospective, observational evaluation of the influence of nurses and health care provider support on hypertension outcomes addresses the following issues. Specifically, this paper assesses, under community practice conditions, the extent to which two forms of support for hypertensive patients influence blood pressure control

outcomes. The researcher will ask the patient to rate the nurses and health care providers on, a) practical support for hypertension care (e.g., proactive follow-up, setting agreed-on goals, and developing a written action plan); and b) communicative support (e.g., empathic listening and encouraging patients to ask questions). The researcher prospectively assessed the effects of nurses and health care providers support, as evaluated by patients, on blood pressure control.

Research Questions

1. How to integrate SKT-2 technique to develop model of proactive practical team?

2. How effective is the intervention to control blood pressure in community?

Research Objectives

General Objective

1. Assess the problems and factors related to community-based hypertension control interventions in community setting.

Specific objectives

1. To identify characteristics and responsibilities of the proactive healthcare team.

2. To develop a model for improving blood pressure control in the community setting.

3. To explore the barriers and facilitating factors of integrated SKT-2 technique, a mind-body technique, to control blood pressure in the community setting.

Operation definition

1. Hypertensive person: refers to persons diagnosed with hypertension **(essential hypertension)** by physicians and have at least 2 follow–up visits at the hypertension clinic of primary care units or health care center **and** have SBP≥140 mmHg and /or DBP ≥90 mmHg. (JCN7)

2. Nurse and health care provider: refers to nurses and health care providers who work in hypertension clinics of primary care units or health care center which have previously received training in SKT techniques.

3. SKT: refer to Somporn Kantaradusadee Triamchaisri's technique which is a mind and body technique (meditation healing exercise and breathing) for healing chronic diseases and blood pressure control. The practice consists of seven sub-techniques describes in chapter II.

4. Barrier of blood pressure control: refers to persons' perceptions, feelings, ideas and beliefs about barriers to consistently blood pressure control in their community (from In-depth Interview).

5. Facilitator of blood pressure control: refers to persons' perceptions**,** feelings, ideas and beliefs about benefits, facilitators of blood pressure control in their community (from In-depth Interview).

6. Personal factors: refers to individual factors that influence blood pressure control. Personal factors are age, gender, education, occupation, income, duration of disease and knowledge of hypertension. In this study, the investigator conceptualized demographic variables as personal factors.

7. Non-pharmacological factors: refers to factors influences to blood pressure control such as salt intake, caffeine, calcium, magnesium and fish oil intake,

cigarette smoking, alcohol consumption, role of physical exercise, obesity, stress reduction and biofeedback, yoga, meditation, and acupuncture.

8. Medication environment factors: refers to environment factors including access to care, the patient-provider interaction and features of the practice setting. These factors are interrelated and can have a profound impact on blood pressure control.

9. Proactive practice team: refers to teams established by nurses and health care providers with a responsibility to care the persons with hypertension with have practical support for hypertension care for such as proactive follow-up, setting agreed-on goals, and developing a written action plan.

10. Self-monitoring: refers to persons with hypertension's activities or methods to warn or monitor them to continuously practice their SKT-2 technique.

Expected Benefits

Patient Benefits

Hypertensive patients will learn effective skills and behaviors to control and monitor their blood pressure. As a result of practicing SKT-2, they will be able to reduce their blood pressure and dependence on antihypertensive medications.

Healthcare Provider Benefits

The study will be useful information for public health nurses and health care providers to incorporate into development of effective intervention to enhance blood pressure control for persons with hypertension in community.

District Health Office Benefits

As the pilot site for this program, the Kae rai district health promotion hospital will benefit from the establishment and experiences of the proactive health care team that can serve as a model for other districts in Thailand. Additionally they will be provided with educational material and a structured program to control blood pressure in the community

Provincial Health Office Benefits

The provincial health office will provide support to the district level efforts to promote and manage hypertensive disease. This decentralized, community-centered approach to hypertension control will result in a more sustainable, locally-managed program. This will also facilitate public health policy implementation at lower levels of government through well-established, knowledgeable proactive healthcare teams.

CHAPTER II
LITERATURE REVIEW

The present research is based on the relevant factors and related literature search on the following topics:

2.1 Information on hypertension:
- Definition
- Complications of hypertension
- Treatment of hypertension

2.2 Factors related to blood pressure control:
- Personal factors (demographic characteristics, perception, and social support)
- Non- medication factors (Lifestyle modification)
- Medication factors
- Medical environment (access to care, the patient-provider interaction and feature of practice setting)
- Mind and body therapies factors
- SKT techniques

2.3 The approach and application of the Chronic Care Model

2.4 Intervention to control blood pressure
- Barriers
- Facilitators
- Proactive Team
- Tools
- Provider oriented interventions
- Patient oriented interventions
- Disease management programs

2.1 Hypertension

2.1.1 Definition

The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure defines hypertension as repeatedly high blood pressure, with systolic (SBP)and diastolic blood pressure (DBP) of 140 mmHgand 90 mmHg or greater, respectively. The definition also includes a history of taking antihypertensive medications (The Seventh Report of the Joint National Committee [JNC 7], 2003). Blood pressure levels in adults are categorized into four levels, normal (SBP < 120 mmHg. and DBP < 90 mmHg.), pre-hypertension (SBP = 120 to 139 mmHg, and/or DBP = 80 to 89 mmHg.), stage I hypertension (SBP = 140 to 159 mmHg. and/or DBP = 90 to 99 mmHg.) and stage II (SBP > 160 mmHg. and/or DBP > 110 mmHg.) (JNC 7, 2003).

2.1.2 Complications of hypertension

Most complications from hypertensive disease result from micro- and macro-vascular injury to target end-organs. The most significant complications of hypertension are heart failure, cerebrovascular disease (stroke) and chronic renal insufficiency from long-term injury to the myocardium, cerebral vasculature and kidneys, respectively. Poorly controlled hypertension and non-compliance with antihypertensive therapies increases the risk of developing complications as follow:

1. Heart failure, myocardial ischemia, and myocardial infarction can occur as complications ofhypertension. Hypertension is the cause of up to 90% of heart failure cases, by increasing left ventricular workload against an elevated systemic vascular resistance. In the early stages this leads to cardiac chamber dilatation, however with time, myocardial dysfunction and congestive heart failure. In the first stage, the heart dilates along with an increase in left ventricular diameter. Cardiac complications are a major cause of mortality and morbidity related to hypertension (JNC 7, 2003).

2. Strokes are the result of hypertension-induced arterial endothelial injury and aneurismal vascular changes. Prolonged uncontrolled high blood pressure is a major risk factor for stroke, as a result of arterial occlusive disease or ruptured cerebral aneurysms. The incidence of stroke is higher in Western countries and is a frequent cause of premature death (World Health Organization [WHO], 1978).

3. Chronic renal failure (CRF) is frequently caused by hypertension-related renal vascular injury, with resultant decline in renal function. Hypertensive disease precipitates artherosclerotic injury in both the renal micro-vasculatureand the main renal artery, which results in worsening high blood pressure. It is estimated that the glomerular filtration rate (GFR) declines by 8 ml/min per year in situations of uncontrolled systolic blood pressure. The reduction in GFR and renal functions compromises the clearance of urea and other metabolites, which accumulate and cause additional morbidity and death if left untreated (JNC 7, 2003).

4. Vascular injury from hypertension can occur in any organ and any size vessel. Hypertension-induced vascular injury can result in thrombosis, embolism or hemorrhage.Endothelial injury leads to artherosclerotic plaques with subsequent ischemia and hypo perfusion of vital end-organs.

5. Blindness, can result from hypertensive retinopathy from retinal arterial plaque deposition, which can cause ischemia, vessel leakage or rupture. Extravasatedblood injures the optic nerves causing impaired vision and eventual blindness.

2.1.3 Goal of therapy

The public health goal of antihypertensive therapies is to reduce cardiovascular, cerebrovascular and renalmorbidity and mortality. Most hypertension patients, particularly those older than 50 years, will auto-regulate their diastolic blood pressure once the systolic blood pressure goal is achieved. Thus the primary focus is controlling the systolic blood pressure. A reduction in blood pressure values below 140/90 mm Hg is associated with a decrease in cardiovascular complications. Hypertensive patients with diabetes or renal disease are recommended a blood pressure goal of less than 130/80 mmHg (JNC 7, 2003).

2.1.4 Treatment of hypertension

Hypertension can be prevented and treated with lifestyle modification and pharmacological treatment. The first line of therapy usually involves lifestyle modifications, such as decreasing salt intake or regular exercise, which can usually control early hypertension. However, most patients have will eventually require pharmacological intervention to adequately control their blood pressure.

Lifestyle modifications

Lifestyle modifications are an important element in any hypertension treatment program. Early adoption of healthy lifestyle practices can prevent the onset of disease. Adopted lifestyle modifications have been demonstrated to effectively lower elevated blood pressure and other cardiovascular diseases. These practices are inexpensive to implement and are associated with minimal risk (JNC 7, 2003). Lifestyle modifications include weight reduction, physical activity, dietary moderation, relaxation, biofeedback and tobacco avoidance.

Pharmacological treatment

Antihypertensive medications are typically administered in combination regimens, which sequentially and systematically add new antihypertensive medications until the goal blood pressure is achieved. In the absence of specific indications requiring a specific drug class (cardiac disease, diabetes mellitus), diuretics are typically prescribed as first line monotherapy for stage 1 hypertension. For stage II hypertension a second antihypertensive drug class is typically added to the diuretic. Alternatively, the first line drugs dose can be increased until the blood pressure goal is achieved or drug tolerance levels are reached. (Chobanian, et al., 2003).

The major classes of antihypertensive medications are diuretics, β-blocking agents, calcium antagonists and angiotensin converting enzyme inhibitors. Other classes include α_1- receptor antagonists, peripheral adrenergic neuronal inhibitors, central α_2-adrenergic agonists and direct vasodilators.

Diuretics are the first drugof choice for hypertensive patients with stage I disease as a monotherapy. Diuretics are inexpensive and easy to take, often requiring once daily administration. They have been shown to provide long–term benefit in the elderly and are appropriate for patients who have a contraindication toβ-blocking agents. Diuretics are the mainstay of antihypertensive therapy for most individuals, and their use is expected to continue in the absence of definitive outcomes data demonstrating the superiority of other drug classes for managing early high blood pressure. (Applegate, 1989). The common diuretic adverse effects are hypokalemia, lipid disorders (Wattanachai, 1989) weakness and genitourinary dysfunction (Tayler, 1990).

β-Blocking agents can also be used as amonotherapy treatment. They are often prescribed to patients who are unable to tolerate or have contraindications to diuretic use. The common adverse effects from β-Blocking agents are insomnia, nightmares, hallucination, bronchospasm, lipid disorder, decreased renal perfusion and sympathetic rebound hyper-reactivity if suddenly withdrawn (Wattanachai, 1989).

Calcium antagonists Because these agents decrease vascular resistance and have no significant effects on serum lipid levels or the central nervous system, they are theoretically ideal antihypertensive agents in the elderly (Applegate, WB, 1989). Whenever used in combination with a β-blocking agent, nifedipine is preferable because the other two drugs in this class, verapramil and diltiazem, cause potent cardiac depression. The common adverse effects of this class are headaches, flushing and focal ankle edema (Wattanachai, 1989).

Angiotensin Converting Enzyme (ACE) inhibitors Although ACE inhibitors are relatively expensive, physician favor them because they have not been associated with significant effects on serum glucose, lipid or uric acid levels. They may cause hyperkalemia and acute renal failure in patients with impaired renal blood flow, as well as cough, rash and loss of taste. (Tayler, 1990)

α_1-receptor antagonists In addition to treating hypertension, they also treat chronic refractory heart failure. The first-dose phenomenon always occurs with patients usingprazosin for the first time. The reported adverse effects are headache, drowsiness, fatigue and weakness (Wattanachai, 1989).

Peripheral adrenergic neuronal inhibitors. These drugs, (example, reserpine) have a long onset duration so that they can be taken once daily and provide peak efficacy after several weeks. They have synergistic efficacy with diuretics. Depression, nasal stiffness and weakness are typicaladverse effects (Wattanachai, 1989).

Central $\alpha_2$adrenergic agonists including methyldopa, clonidine and guanabenz, are suggested to be taken with diuretics in order to mitigate fluid retention. An abrupt discontinuation causes reactive hypertension (Wattanachai, 1989).

Direct vasodilators are indicated for malignant hypertension, hypertensive crises or for those with renal insufficiency. Headache, flushing, tachycardia, anorexia, fluid retention and SLE-like syndrome are typical adverse effects (Wattanachai, 1989).

The optimal selection of antihypertensive therapy requires consideration of the special characteristics of the patient'sphysiology, particularly in the elderly, response to previous therapy and incidence of comorbid illness and medications. Treatment should be altered as necessary to minimize adverse effects that may impair the quality of life or lead to poor compliance (Burris, 1993; JNC, 1997; and Cohen, 1991). Freis(1999) reported that the following criteria for optimal drug therapy: effective blood pressure control, simplicity, safety, cost effectiveness, and little or no interference with normal lifestyle. However,it is recommended that antihypertensive regimen include non-pharmacological interventions (Tayler, 1990), which can control blood pressure sufficiently to delay the need for medications (Applegate, 1992).

2.2 Factors related to blood pressure control

2.2.1 Barriers and Facilitators of blood pressure control that influence blood pressure control include age, gender, education, occupation, income, duration of disease ,and knowledge of hypertension. In this study, the investigator conceptualized demographic variables as a personal factor.

2.2.1.1 Demographic variables

Demographic variables are associated with blood pressure control among hypertensive patients as follow:

Age

Patients' age reflectsphysical development andthe accumulation life experiences, which affect levels of individual tolerance, life problem perceptions, general understanding, use of reason and decision making for behavior modification in the individual. It is generally assumed that moreadvanced age can be associated with wiser life and health choices (Orem, 1985).Muhlenkamp (1986) reported that advancing age is positively associated with health supportive behaviors. Age also a significant predictor of patient adoption of hypertensionpreventive behaviors (Ruangtip, 2000). The study byPuranamaneewiwat (1989) compared the lifestyles and behaviors of hypertensive and normotensive subjects. The study found that younger subjects were more likely to be normotensive andhad significantly higher mean scores in physical and intellectual dimensions than older subjects. There are higher rates of medication non-compliance among less educated and older individuals, making it more challenging to control hypertension in these at risk groups (Kirscht and Rosenstock, 1997).

Gender

Gender is another factor that affectsblood pressure control. O'Neil (1976) studied hypertensive patients and found that male subjects tended to assume leadership or dominance roles in their disease management when compared with female subjects. Nathanson (1977) studied the relationship between gender and

health awareness behavior and found that females are more likely to avoid risk factors and to adopt health protection measures than males. These seemingly conflicting study results are indicative of complex role gender plays in health maintenance. Hongtakul (1989) studied the ability to perform self-care activities among essential hypertensive patients and found that gender was not predictive for performance of such activities. A survey of the factors influencing continuation of antihypertensive treatment in a hospital in Thailand showed that female gender was significantly associated with the likelihood of discontinuing medication (Kobayashi,1992). Punyawantanee (B.E.2541) studied noncompliance of antihypertensive drugs among out-patient at Surat-Thani hospital in Thailand andfound no difference in the levels of noncompliance between male and female patients. Female gender is, however, associated with good compliance with dietary restrictions (Kyngas and Lahdenpera, 1999). Bloom (2001) found that compliance with antihypertensive drugs is better in women and in those prescribed fewer drugs.

Education

Level of education can affect blood pressure control. More highly educated individuals are more likely to be knowledgeable about their disease, have healthier attitudes and are more likely to adopt healthy lifestyles (Suwan, 1983). Lower education was significantly related to discontinuation of antihypertensive treatment in a hospital inThailand (Kobayashi, 1992). However a study small study of forty hypertensive patients treated at Pungnga Hospital found that basic education of patients was not associated with adoption of health measures (Worakulsawat,1992)

Knowledge of hypertension and its complications affects the regularity of attendance to treatment regimens (Watcharaarpapibul, 1995). Kirscht and Rosenstock (1997) studied patient adherence to antihypertensive medical regimens and found that less educated patients were more likely to be non-compliant. Thitisak (1997) reported that education level is positively correlated with health behaviors of hypertensive women in the Bangkok Metropolitan area. Two important factors contribute to successful blood pressure control,knowledgesharing with the aim of increasing self-care compliance and greater efforts to reduce treatment side-effectsand thus improve compliance (Kjellgren, 1998). Similarly, Kyngas and Lahdenpera,(1999)

reported that higher education levels are related to improved compliance with dietary restrictions related to blood pressure control.

Income

Steele and Mc.Broom (1972) reported that higher income individuals have better general health than those from lower income brackets. This difference is related to a higher tendency towards preventive measures and better access to treatment at higher income levels. It is worthwhile to note that individual healthcare costs encompass more than the economic measures but can include factors such as, time and effort costs of medical appointments, financial and time costs of filling prescription, direct health costs associated with medication side (Smith, 1996 ; Golstein and Kramerl,1982). The study by Pasunan (1987) found that personal income is positively associated with the ability of self-care. Walker, et al. (1988) found that income isassociated with health supporting behaviors. Low income was significantly related to discontinuation of antihypertensive treatment in Thailand (Kobayashi,1992). Thitisak (1997) found that income, occupation and a tendency to assume many domestic and family roles were barriers to the practice of health promoting behaviors in hypertensive women. Income wasa significant predictors of preventive behavior for hypertension (Ruangtip, B.E.2000).

Duration of disease

An analysis of antihypertensive regimen compliance in newly diagnosed patients showed that more than 50% of patientsdrop out of treatment within one year. Of those who remain under a physician's care, about 40% are only partially compliant, taking insufficient medications to control blood pressure (Rudd, 1992). Onchim (B.E. 2002) reported that the duration of hypertension treatment was positively related to patient's self-efficacy and self-care behaviors. However, a study by Shaw, et al.(1995) reported that the duration oftakingantihypertensive medications was not significantly related to levels of compliance. The course of hypertensive disease was not significantly related to health behaviors in hypertensive women in the Bangkok Metropolitan area (Thitisak, 1997).

2.2.1.2 Health perception

This study has been adapted from the health beliefs described by Becker (1974) which are perception factors related to health.

1. Perceived susceptibility
2. Perceived severity
3. Perceived benefit
4. Perceived barrier

"Perception is the cognitive function by which individuals give meaning to their environment. It yields a unique picture of the world that may be quite different from reality. Because each person gives his or her own meaning to stimuli, different individuals will see the same thing in different ways. Perception refers to the acquisition of specific knowledge about objects or events at any particular moment and it occurs whenever stimuli activate the senses. The perceptual process involves a complicated interaction of selection, organization and interpretation. This process influences behavior and forms attitudes"(Ivancevich, et al., 1999 and Luthans, 1985).

Perception begins when a person is confronted with a stimulus, either directly or indirectly through socio-cultural factors. This is followed by the internal cognitive processes of registration, interpretation and feedback. Health perception can lead to behavioral change after individual compare benefits with the barriers to effectivepractice. Thus, individual behavior is dictated to a large degree by the individuals perception of the health problem and its associated risk factors (Ivancevich, et al., 1999).

The research related with health perception

There role of patient perception about hypertensive disease management in treatment outcomes has been widely reported. Bikaew (1985) studied the relationship between health beliefs and treatment co-operation in 100 essential hypertensive patients at Siriraj Hospital. The study showed that general motivation had a significant positiveassociation with treatment co-operation. However, it was found that there was no relationship between treatment co-operation and perceived susceptibility, perceived severity, treatment and practices usefulness and health beliefs. On the other hand, Ruangtip (2000) studied the health beliefs and preventive

health behaviors of hypertensive bank officers. This study found that cues to action and health beliefs were significant predictors of preventive behaviors for hypertension.

A study byWisessatorn (2001) from Parkpanang hospital, Nakhornsritammarat provincial Thailand, examined the application of a health belief model in the prevention of complications of essential hypertension. Participants who were trained in the model had significantly higher health beliefs and were more proactive about the prevention of complicationsof hypertension than before the study (p-value<0.001). A studyby Kanjanapibul (2000) at Pramongkutklao hospital in Bangkok, applied protection motivation against complications of hypertension and showed that participants developed increased perceived disease severity and increased perceived vulnerability to hypertensive complication, increased perceived self-efficacy and increased perceived response efficacy of preventive behaviors. A significantly higher proportion of patients in the study group were able to reduce their blood pressure as compared to the comparison group(p-value .05).

Patient's perception of hypertension and medications: Adherence with prescribed medication regimen is dependent upon 1) one's readiness to take action, which is determined by perceptions of the seriousness of the disease and susceptibility to a particular disease and its sequelae,2) one's assessment of the benefits versus costs of alternative health behaviors and 3) a cue or stimulus to trigger the response. (Waldenuis, et al., 1995; Boecher,1975 and Smith,1996).

2.2.1.3 Social support

Social support structures, defined as the societal resources available to support individual goals, can encourage positive and beneficial health behaviors in patients.This support is particularly important for chronic or long-term treatments that require continuous attention and vigilance by the patient. Social supports, not only help to prevent or reduce the risk of illnesses, but also help individuals to cope with chronic illnesses (Stanfeld, 1999). Social supports include the individual's family members, friends and the health provider care system.

The research related with social support

Social support is important in helping hypertensive patients to control their blood pressure. A review of the literature found several studies that highlight the key role of support for hypertensive patients to help the control their disease.

Caplan, et al. (1976) found that emotional support is a good variable to predict treatment co-operation, and a good social support group have high score of co-operation. Doungpang (1988) found that social support from the spouses are positively associated with self-care of patients. Similar results were obtained in a study of Nujaroengun, S. conducted with the patients who had head, neck and cervix cancer.

Hongtragoon (1989) studied the relationship between social supports and the self-care ability in 100 essential hypertensive patients who had received the treatment at Ramathibodi Hospital (OPD clinic) and reported that social supports is positively associated with self-care of the patient. Similarly, Komprayuk (1989) studied the result of nursing methods on treatment co-operation in 214 essential hypertensive patients at Siriraj Hospital. She found that giving knowledge of hypertension to the sample group and family who gave social support to the sample group are better methods to increase health belief. Important support is from the spouses. Channimit (1989) also reported similar finding that supportive group intervention improved scored of behavior, self-care, patient-relative relationship, supporting behavior of the relatives for the patients and the level of controlled blood pressure of the patients than those the discussion group. An application of self-efficacy theory and social support to the health education program could significantly effect self-efficacy, improve outcomes in hypertension sufferers among the elderly (Tanopas, 1996).

In addition, social support could help hypertensive patients to change positively on behavior against complications of hypertension and help to reduce blood pressure (Muakkaew, 1997; Ninyoo, 1999; Kijjachanchaikul, 1999; Siriagekarat, B.E. 2000; and Chaipermsak 2002).

2.2.2 Non- medication factors (Lifestyle modification)

In the successive reports of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (HBP), non- drug therapy is recommended as it has long been considered efficacious (Darwin and Carma,2002).

In addition, reports on primary prevention of HBP including the Primary Prevention of Essential Hypertension (Report of a WHO Scientific Group) (WHO, 1982). National High Blood Pressure Education Program's (NHBPEP) working groups report on primary prevention of hypertension, (NHBPEP,1993) have stressed on the non-drug therapy.

In this study, non-pharmacological approaches were presented such as salt intake, caffeine, calcium, magnesium and fish oil, cigarette smoking, alcohol consumption, role of physical exercise, obesity, and spiritual and religious factors. Also the role of alternative practices such as stress reduction and biofeedback, yoga, meditation, and acupuncture are considered.

2.2.2.1 Dietary Factors

The initial DASH study by Sacks et al (2001) tested three diets over an eight week period with BP as an end-point (a) typical diet (control), (b) a diet high in fruits and vegetables (fruit/veg), (c) a fruit/ veg diet combined with reduced fat and cholesterol intake (combined). Compared to the typical diet, the combined diet lowered SBP and DBP by 5.5 and 3.0 mm Hg respectively and fruit/veg diet lowered these values by 2.8 and 1.1 mm Hg, respectively. The BP lowering effect was seen in those with and without hypertension, in men and women, and in all ethnic groups, who were taking usual sodium intake of 3 g/day and without weight loss. Among hypertensive patients, however, SBP and DBP dropped even more, up to 11.4 and 5.5mm Hg, respectively, in comparison to those on control diet. It therefore seems that diet low in saturated fat and cholesterol and higher in fruits and vegetables may be more beneficial for hypertension and cardiovascular risk.

Salt Intake

The required daily intake of sodium (Na) in our diet is approximately 500 mg of sodium chloride (NaCl). Under normal homeostatic conditions, sodium intake and sodium loss are in balance and the intracellular and extracellular concentrations of sodium are kept within physiological limits by an intricate regulatory system. However it is a universal practice that sodium is consumed much more than required and this seems to be related to the immense global burden of HBP and consequent complications such as coronary artery disease (CAD), stroke, heart failure and renal failure (Darwin and Carma,2002).

Kempner had put forward hypothesis that excess salt intake can raise BP and then he suggested rice and fruit diet (Kempner's diet). (Dole; Dahl; Cotzias; Eer and Krebs, 1950). Intersalt (1988)was the first large study (10079 men and women aged 20-59 years from 52 centers around the world) which estimated sodium and potassium excretion, blood pressure, body mass index and alcohol intake. Their conclusions were that (1) Sodium excretion was significantly related to BP and atleast partly, this relationship is independent of body mass index and ethanol intake. (2) After correction for weight and ethanol consumption, a reductionin sodium intake of 100 mmol a day produced a reduction of 2.2 mm SBP and 0.1 mm Hg in DBP. Cutler et al (1991)in their analysis of 23 randomly controlled trials showed that 100 mmol/day reduction in sodium intake was associated with a decline of 5.7 mm Hg SBP and 2.7 mm Hg DBP in hypertensive subjects and 2.2 mm Hg/1.3 mm Hg in normotensives.

Caffeine

It is known to raise blood pressure but its regular use isnot associated with hypertension (Stamler; Caggiula; and Grandits, 1997). Acute consumption of 2-3 cups of coffee (250 mg of caffeine) raises blood pressure by 5-15 mmHg and may remain high for two hours. But chronic caffeineingestion (500 mg/day for 4 weeks) is not accompanied by asignificant rise in blood pressure (Mehta, 1995).from 1983 to 1993, found that calcium supplementation had noeffect on BP (Pryer, Cappuccio, and Elliott, 1995). Similarly in the Nurses' Health Study, there was no relationship between calcium intake and development of hypertension, there unlike K supplementation, supplementing of women with low calcium intake did not

lower BP (Sacks et al.,1998 and Ascherio, et al.1996) It is therefore concluded that there is no justification for routine use of calcium supplements specifically to prevent hypertension.

Fish oil

There is increasing evidence that fish oil benefits BP. In350 normotensive men and women aged 30 to 54 years,participants were assigned to placebo or 6 gms of purified fish oil daily for six months (Sacks et al.,1994; Sacks et al 1994). These moderate amounts didnot lower BP in normotensive persons but did increase HDL2cholesterol. A meta analysis of 31 clinical trials of 1356 personsshowed a close response effect of omega-3 fatty acids onSBP and DBP of -0.66 and 0.35 mm Hg/g respectively (Morriset al., 1993). They suggested that the BP lowering effect may bestrongest in hypertensive persons and those withdyslipidemia or clinical atherosclerosis. Appel et al. (1993) in theirreport on meta-analysis of 17 clinical trials with fish oil showedthat diet supplementation with relatively high doses (morethan 3 gm/day) leads to BP reductions in hypertensivepatients.

Alcohol consumption

Alcohol has paradoxical effects on CVS, however, with a Jshaped risk profile for alcohol intake reflecting the protectionof small amounts of alcohol against coronary atheroma. Thisphenomenon is caused by an increase in HDL cholesterol concentrations or coronary artery dilatation, lower plasma fibrinogen values and inhibited platelet aggregation.(Criqui, 1998; Kalpan, 1997; and Puddey et al.,1999). Excessive alcohol consumption is an important risk factor forhypertension. The INTERSALT5 showed a strong and independent relation with alcohol and rising blood pressure.The exact mechanism of action is not clear but is postulated that activation of renin-angiotensin system, rise of plasmacortisol and stimulation of sympathetic system may beresponsible.

2.2.2.2 Physical activity

Physically active persons have lower blood pressure, reduced risk for cardiovascular and all cause mortality andlive longer. Physical exercise reduces blood pressure (Wilcox, Bennett, Brown and MacDonald, 1982). The benefit of physical activity to the primary prevention ofhypertension has been shown by both clinical trials andlongitudinal studies (Crespo, et al.,1996; Heini and Weinsier,.1997), with the Harvard Alumni Study beingthe most notable of the later group. This study included15,000 male alumni who were normotensive in 1962 (BP ≤160/ 95 mm Hg) but some of whom in second survey done in 1977 developed hypertension (BP ≥160/95). Comparing physically active (walking, climbing, sports) and sedentary, it was found that inactive alumni had a 35% greater risk for developing hypertension than the active group. Also another influencing risk was a BMI greater than 36, an increase in weight of more than 25 pounds since graduation and family history of hypertension. Taylor-Tolbert et al.(2000) showed that SBP and DBP are reduced up to 12-15 hours after a single sub maximal exercise session in older hypertensive male persons. That a patient of hypertension walking vigorously for 15 minutes before breakfast, lunch and dinner would experience significant reductions in BP for nearly every hour of the day.

Today, physical exercise is considered an important component of the non-pharmacological treatment of hypertension. The American Heart Association considers physical inactivity a risk factor for IHD (Fletcher, et al., 1996). The NIH Consensus Development Panel on Physical Activity and Cardiovascular Health (NIH, 1996) has drawn the same conclusion. Considering all studies, the recommendations for physical activity are:

1) All persons over two years of age should spend at least 30 minutes of endurance type physical activity on most (preferably all) days of the week,

2) Additional health and functional benefits can accrue with increased time in moderately intense activity,

3) People with symptomatic CHD, diabetes mellitus or other chronic health problems should be evaluated by a physician and given an exercise program appropriate for their condition,

4) Inactive men older than 40 years of age, women older than 50, or patients at high risk for CHD should see their physician before starting a program of vigorous physical activity and

5) Resistance or strength development activities should be added at least two times a week. (JNC-VI,1997 and Heyka,1999).

2.2.2.3 Obesity

It is claimed that obesity is the most important modifiable risk factor for hypertension (Heyka,1999). In the Nurses' Health Study, obesity, alcohol consumption and older age were strong predictors of hypertension (Ascherio, et al., 1996). Stamler et al. (1978) in their findings in hypertension screening of 1 million Americans showed a strong correlation between elevated DBP (greater than 95 mm Hg) and obesity among all age, ethnic groups and both sexes. In their study, obese persons aged 20 to 36 years had more than double the odds of hypertension than normal weight subjects and triple that of underweight subjects. Obesity is becoming an important factor in the pathogenesis of hypertension, dyslipidemia, diabetes mellitus which together with hyperinsulinaemia makes up the "deadly quartet" or the metabolic syndrome (Kaplan, 1998) The Intersalt study (Intersalt, 1988) of 52 communities worldwide revealed that weight had the most significant independent correlation with blood pressure. Sympathetic nervous system to be the contributing factor in obese persons. Carbohydrate metabolism, amount of food intake and sympathetic nervous system activity are closely related.Obesity plays a major role in the initial development ofhypertension and evidence shows this relationship beginsin youth. In the Framingham off-spring study of young tomiddle-aged adults, 64% to 78% of newly developedhypertension was associated with obesity (Garrison, et al., 1987). Furthermore, children and adolescents at any age who had an initially highBP (especially SBP), higher BMI, higher weight, showed anincreased risk for hypertension at follow up as adults(Fletcher, et al., 1996 and Rocchini, 1993).

2.2.2.4 Cigarette smoking

Although there is lack of epidemiological evidenceimplicating smoking as a cause for hypertension, smoking isan important risk factor leading to

increased morbidity andmortality in hypertensive patients (Anand, 1999). Our laboratory workusing macrophage cell culture has shown that smoking causesendothelial cell dysfunction (Sainani, Sawhney, and Sainani, 2003). Smoking independently raisesBP, although epidemiologically the relationship betweensmoking and hypertension is often confounded by otherfactors such as alcohol consumption and lower consumptionof fruits and vegetables (anti-oxidants) amongst smokers thannon-smokers(Darwin and Carma, 2002). Chain-smokers can have a sustained rise inBP, as shown by ambulatory BP monitoring, which is presumably caused by regular nicotine infusion (Verdecchia et al., 1995).

2.2.3 Medication factors.

For this study medication factors concern only antihypertensive regimens. It refers to number of different types of medication, frequency of daily medication administration, number of pills per day, side effects occurring while administration these regimens, and prescription labels that they associated with blood pressure control as follows:

Number of medications Compliance falls as the number of medicines increases (Punyawantanee, 1998; Cowderoy, Coder, 1987 and Morray and Birt, 1993). The use of more than one drug is also associated with better compliance than the use of only one drug (Hamilton and Briceland, 1992). Perhaps patients are forced to develop a dosage administration strategy that ensures compliance or they are perceived as having complex regimens and receive more medication counseling than other patients (Hamilton and Briceland, 1992; Catherine, 1992). Dale, and colleagues (1997) has shown that compliance was not related to the number of different antihypertensive drugs prescribed. However, polypharmacy and noncompliance can be mutually sustaining. Polypharmacy contributes to noncompliance and noncompliance may lead to polypharmacy (Weber, 1993).

Daily frequency of medication administration Compliance rate is related inversely to the number of prescribed daily doses. A frequency greater than twice a day is difficult to comply with (Dale, et al., 1997; Rudd, 1995; and Cater, et al., 1994). The goal should be to use therapy once daily with immediate release products when they are available. From the report of Hamilton (1992), the relationship between compliance and number of doses is not linear because there is no difference between regimens involving two and three doses per day. Another study found nonstatistically significant difference between twice a day and times a day regimen (Murray et al., 1993). When the frequency of daily prescribed doses decreased from three times to once daily, medication compliance improved by 42% (Eisen, et al., 1990). The proportion of patients whose compliance improved when switched from twice to once a day was 30%. However, it is appropriate to initiate therapy twice daily when an inexpensive product, given once daily, is not available (Eisen, et al., 1990). The once daily therapy does not only provide an advantage. The risk is the loss of all drug ingestion if that single does is missed, which leads to increased the occurrences of sub-therapeutic drug concentrations (Rudd, 1995; Cramer, 1990). To improve drug compliance, a physician should prescribe doses of medication at times that correspond to regular activities in the patient's daily schedule (Bond and Hussar,1991; Coamb, et al.,1995; Rudd,1992 and Cramer,1991).

Frequency of dosing has also been reported as having no association with compliance (Punyawantanee, 1998). Choo and others (1999) studied to validation of patient reports, automated pharmacy records, and pill counts with electronic monitoring of adherence to antihypertensive therapy. The study found that patients with hypertension tend to take the prescribed dose of antihypertensive medication more than they tend to take it at the right time intervals.

Electronic adherence monitoring revealed that the proportion of prescribed dose consumed was higher than the proportion of dose taken on time. Pill counts and refill adherence ascertained from pharmacy dispensing records were more sensitive measures of the number of doses consumed than appropriate dose timing.

Sritiragul,et al.,(1999) researched factors related to the failure of controlling hypertension. The research showed that 264 patients were unable to control their hypertension, and 217 patients were able to control their hypertension. Inappropriate consumption behaviors, inadequate exercise and sleep, anxiety, lack of regularity on taking antihypertensive medication and follow up were the factors related to the failure of controlling hypertension.

Bloom (2001) studied to fewer daily dose and drugs with fewer side effects improve compliance. Compliance with antihypertensive drugs is also better in older patients, women, and in those prescribed fewer drugs. And Sumalai Wiwatkunoopakarn (2001) found that controllable systolic blood pressure level, daily frequency of drug administration and appropriated travelling time to the hospital were significantly related to drug compliance among essential hypertensive patients at Nan hospital.

Number of pills per day The amount of pills taken daily is one of the most significant barriers to optimal compliance, like the number of does per day (Farmer, et al., 1994).

Side effects The presence of side effects has been mentioned as a reason for noncompliance. They have been found to affect a patient's decision to cease or continue using a medication (Bond and Hussar, 1991; Rudd,1995; McCue,1990; and Clark,1991). Clinicians may often overlook the impact that side effects of antihypertensive medications have on patients, particularly when the effects are neither severe nor life threatening. Side effects may turn otherwise asymptomatic hypertension into a symptomatic disease (McCue, 1990; Toyoshima, et al., 1997). The newer classes of antihypertensive agents such as ACE inhibitors and calcium antagonists, are generally more tolerable and affect noncompliance less than the older classes of diuretics and β-blockers. If increased tolerability is a reason for greater levels of compliance, it may be that the most tolerable agents will be associated with the greatest (Rizzo and Simons, 1997 and Caro,1997). Bloom (2001) studied to fewer daily dose and drugs with fewer side effects improve compliance. However, not all studies have found this positive relationship, side effects had no association to

compliance as shown by Triamamornwooth (1991), Chantharasawat (1996) and Maneeruengdech (1986).

2.2.4 Medical environment

In this study medication environment includesaccess to care, the patient-provider interaction and feature of practice setting. These factors are interrelated and can have a profound impact on blood pressure control.

2.2.4.1 Access to health care

The Institute of Medicine (Washington, DC) defines access as the timely use of personal health services to achieve the best possible health outcomes. Patients may have trouble getting care because of cost, lack of insurance, and transportation problems (Cooper, Hill, and Powe, 2002). In addition, there may be system or practice-related problems such as difficulty getting appointments, after-hours advice, specialist referrals, or tests. The importance of access in achieving blood pressure control has been well documented among both known and previously undiagnosed hypertensive patients. Patients with poorly controlled hypertension are more likely to report cost as a deterrent to buying medications or seeing a physician than patients whose hypertension is controlled (Ahluwalia, McNagny, and Rask, 1997).

Case control studies have shown that uncontrolled hypertension is associated with lack of health insurance (Ahluwalia, McNagny, and Rask, 1997; Shea, Misra, and Ehrlich, 1992). The RAND Health Insurance Experiment found that hypertensive patients randomly assigned to free care had lower mean blood pressures at study conclusion than those assigned to cost-sharing plans (Keeler, Brook, and Goldberg, 1985) This difference was greatest for low income individuals. Further, all of these studies found evidence that having more contact with the health care system, including having a regular source of care or a primary care physician, resulted in better blood pressure control (Ahluwalia, McNagny, and Rask, 1997; Shea, Misra, and Ehrlich, 1992; and Keeler, Brook, and Goldberg, 1985).

2.2.4.2 Patient-provider interaction

A care could be optimized, if patients and providers can establish effective personal and working relationships that transcend socioeconomic, racial, and cultural differences, (Cooper, Hill, and Powe, 2002). Good interactions can only help patient adherence to medical regimens. In addition, the provider views the relationship will influence and should be concerned how to communicate with the patient. Further, patient adherence will impact the provider's perception of the patient. Age, sex, and individual experiences will also affect this relationship, as will aspects of the practice setting, including time constraints of visits and lack of reimbursement for nonprocedural tasks such as counseling. Much has been written about various aspects of patient-physician interaction or communication. For example, when patients report higher levels of clinician trust, compassion, and communication, they adhere better to cancer screening (O'Malley, Forrest, and Mandelblatt, 2002). Less is known about its impact on hypertension care and blood pressure control. Other studies suggest that increasing the involvement of patients in their own care is important. Self-reported involvement of patients in their care and treatment decisions is positively associated with both satisfaction and adherence (Ren, Kazis, and Lee, 2002;Cooper-Patrick, Gallo, and Gonzales, 1999).

2.2.4.3 Practice setting

As previously noted, the structure of the health care organization or practice setting can impede or facilitate patient access, and it may influence the patient-physician interaction. It may also affect the ability of providers to manage their patients and adhere to guidelines. Certain features of the practice setting impede adherence to guidelines in general and hypertension guidelines in particular. These features include lack of visit time and lack of financial incentives or reimbursement for patient education and counseling (Cabana, Rand, and Powe, 1999;.McAlister, Campbell, and Zarnke, 2001;and. Cranney, Warren, and Barton, 2001). Lack of office support, lack of patient systems to track and report outcomes, and behavior of one's peers have also been cited as influencing patient care and blood pressure control (Ren, Kazis, Lee, 2002; Cabana, Rand, and Powe, 1999; McAlister, Campbell, and Zarnke, 2001;and. Cranney, Warren, and Barton, 2001).

2.2.5 Mind and body therapies

Mind and body therapies as the intervention of variety techniques designed to facilitate the mind's capacity to affect bodily function and symptoms (NIH), it include relaxation, meditation, imagery, hypnosis, and biofeedback. Mind and body therapies have significant influence on human health and behavior because cannot separate mind and body. They are important mechanism of human'shealing utilize when facingof life stress and illness (Cole &Pargament, 1999; Dein&Stygal, 1997). In additional, Zen, yoga, and meditation practices correlated with lower levels of stress hormone and cholesterol and better overall health outcomes in clinical patient populations. However, the research of Benson (1996) study about the relaxation response is especially helpful for shedding light on how some people are able to return to pre-stress levels of cardiovascular functioning. There are two key findings from Benson's research that are especially helpful in attempting to examine stress, religion, and hypertension. First, Benson argued that religious beliefs and rituals are among the most important factors eliciting the relaxation response. Second, Benson reviewed research showing that hypertensive patients who were able to cultivate the relaxation response subsequently experienced a decrease in blood pressure. Moreover, mind and body therapies also have been shown to have a direct effect on cardiovascular functioning. Recitation of both rosary prayer and yoga mantras were found to decrease respiration, systolic blood pressure, diastolic blood pressure, and transcranial blood flow (Bernardi et al., 2001). In term of mind and body therapies aspects were presented such as stress reduction and biofeedback; yoga; meditation and acupuncture.

2.2.6 Meditation

Meditation is defined in several ways: a systematic and continued focusing of the attention on a target perception, or continually holding a specific attention. Meditation is also used as a means to acquire specific insight, such as might result from personal investigation of consciousness and experiences to perceive more basic underlying qualities. Mediation can also simply serve as any activity that keeps the attention pleasantly anchored in the present moment or as a way to access the relaxation response.

There are several approaches to meditation including:

Concentrative meditation: Attention is focused on breathing, an image, or a sound (e.g. a mantra or chant), which promotes calmness, sharp awareness and clarity of mind.

Mindfulness meditation: Attention is given to the sensations, sounds, smells thoughts, and feels that are being experienced. One is aware without becoming involved in experiences, whichpromotes a calm, nonreactive state of mind.

Transcendental meditation: This from of meditation was introduced by Maharishi Mahesh Yogi and involves the body reaching a level of profound relaxation while the mind achieves a more alert state.

The level of meditation

There are three levelsor functions of meditation describes in Buddhist practice, calming, mindfulness and insight.

1. Calmness or momentary meditation, is a practice of bringing momentary attention on a specific focus to bring on states of calmness and relaxation. This technique can be practiced in daily life as an effective antidote for everyday life stresses.

2. Mindfulness meditation focuses the mind on a particular focus for an extended period of time to produce calmness and train the mind towards stillness.

3. Insight meditation is a focused attention of the mind on a subject in order to gain deep insight into the subject of the focus. The spiritual goal of this practice is to gain insight into and wisdom about ones true state by direct observation.

The practice of Buddhist meditation

There are numerous different methods of practicing mediation in the Buddhist tradition (Pratepwate, 1989). In this research will focus on two methods, prayer meditation and Anapanasati.

Prayer

Prayer meditation refers to meditation in which attention is focused on prayer.

Anapanasati

Annapasati meditation refers to meditation or mindfulness on the breathing as a means to develop to concentrate or protection of the mind. The practice involves specific attention of the phases of the breath, including the momentarypauses inbetween inhalation and exhalation. Buddhist theology quotes the Buddha's description of anapasati meditation in the following way, "go to silent place to sit in meditation posture with a, straight body with the intention of consciousness and recall to inspire and expire of breathing" (Plorn cited by Wanasiri, 1996). As the practice deepens and progresses, the consciousness deepens beyond the inhale-exhale process of breathing to the more subtle intention of mind to breath (Tanassiri., 1996).

A typical set of instructions for annapasati meditation are;

1. When you inhale or exhale, you know that is a long period of breath?
2. When you shortly or inhale or exhale, you know that?
3. When you inhale, you have to observe all your body,then you exhale.
4. When you inhale, you have to mark management of all your body peacefully then, you exhale.

The change of body from meditation

The history of meditation goes back 5000 years, when it was developed as a practice to develop the mind and spirit. More recently, modern scientists have been examining the neurophysiological effects of meditation practice. (Treauchaisri, 1999: 78). Studies have demonstrated measurable changes in brain neurobiology and body physiologic responses, including;

1. Alterations in neurotransmitter response pathways in long-term meditators (Manoongit, 1995). Mediation can affect central and peripheral neurotransmitters and their effects through various inhibitory pathways to alter the perception to stimuli such as pain and temperature.

2. Physiologic body changes demonstrated in long-time meditators includea reduction in oxygen consumption, reduction of the resting heart rate by 25%

and a reduction in skin electro-conductance, an indicator of physiological arousal (Potter and Garfiedld cited by Pemgsuwan, 1985).

3. Biochemical changes found in meditators include a decrease in norepinephrine, cortisol and circulating lactate levels, which are related to decreased levels of anxiety (Wallesse and Bensen cited in Jitsuwon. 1992). Meditation has also been associated with increased endorphin levels, particularly in the spinal cord, where they can modulate pain responses(Jitsuwon. 1992).

4. Electrophysiologic brain wave changes have been demonstrated in long-time meditators, with slower alpha waves more predominant, reflecting relaxed, reflective states (Thusabumlera, 1996).

5. Immunologic changes. Meditation has been linked with increased pineal gland production of melatonin, which is active in the hypothalamus, pituitary and adrenal cortex, and may affect interleukin and other immunmodulatory cytokines. (Triamchaisri, 1999).

Neurophysiology of meditation

Meditation is a complex mental process involving changes in cognition, sensory perception, hormones effects and autonomic activity. Meditation has also become widely used in psychological and medical practices for stress management as well as a variety of physical and mental disorders.Newbreg (2003) described theneurochemicalbasis of the complex mental task of meditation, through the mechanism of neurotransmitter interactions. The proposed neurochemical model of the meditation pathways is shown in Figure 2.1.

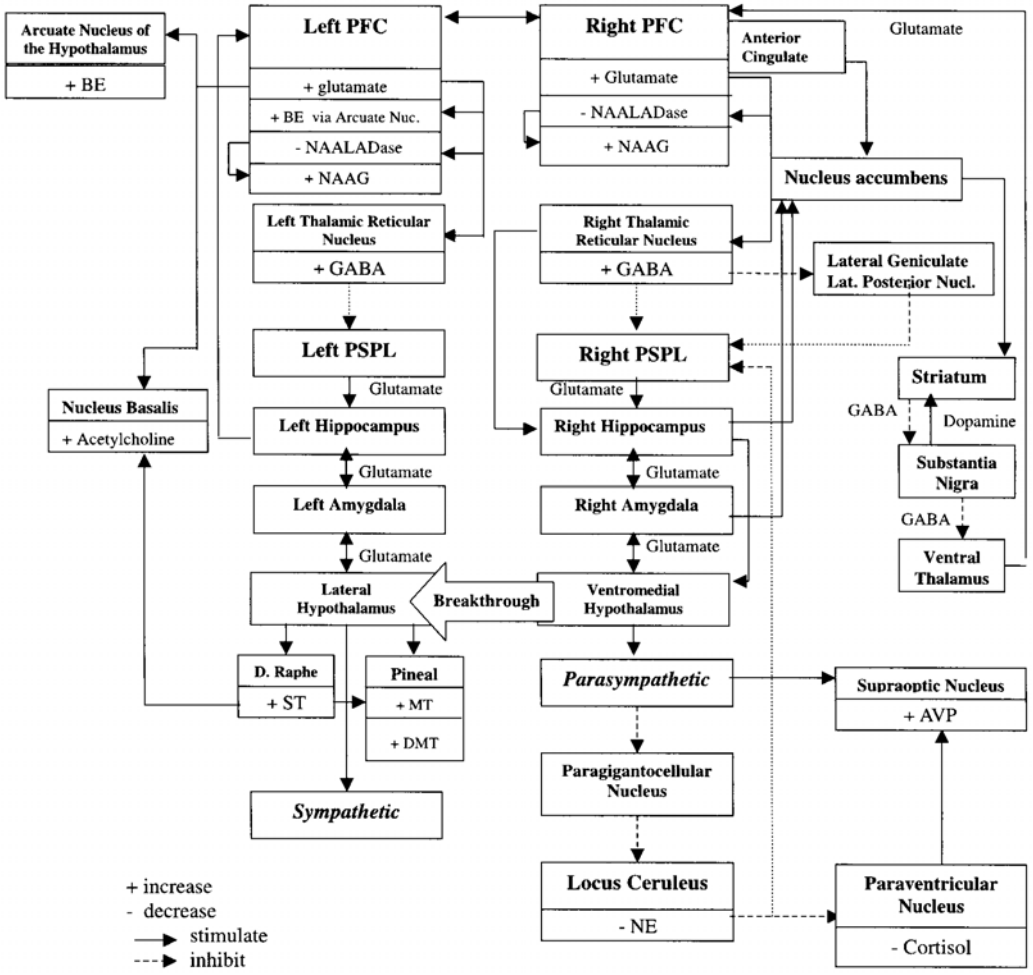


Figure 2.1 Schematic overview of the neurophysiological network possibly associated with meditative states. (Newberg, A.B., and Iversen J.,2003)

Mechanism of meditation in Newberg's model

Activation of the prefrontal and cingulate cortex

Meditation practices are initiated by activation of prefrontal cortex (PFC), particularly in the right hemisphere, with input from the cingulated gyrus. Based on brain imaging studies these areas are associated with volitional, attentive activities (Herzog, 1990-1991; Newberg, 2001;Lazar, 2000).Newberg and Iversen (2003) studied cerebral blood flow patterns in eight Tibetan Buddhist meditators, by

quantitatively demonstrating increased PFC and cingulate gyrus blood flow (more pronounced in the right hemisphere).Thus, prefrontal and cingulate activation may be associated with the volitional aspects of meditation.

Thalamic activation

Several animal studies have shown that the PFC, when activated, innervates the reticular nucleus of the thalamus (Cornwell,1988), particularly as part of a more global attentional network (Partas,1998). Such activation may be accomplished by the PFC's production and distribution of the excitatory neurotransmitter glutamate, which the PCF neurons use to communicate among themselves and to innervate other brain structures (Cheramy,1987). Thalamus itself governs the flow sensory information to cortical processing areas via its interactions with the lateral geniculate and lateral posterior nuclei and also likely uses the glutamate system in order to activate neurons in other structures (Armony, 2000). The lateral geniculate nucleus receives raw visual data from the optic tract and routes it to the striate cortex for processing (Andrew, 2000). The lateral posterior nucleus of the thalamus provides the posterior superior parietal lobule (PSPL) with the sensory information it needs to determine the body's spatial orientation (Bucci, 1999).

When excited, the reticular nucleus secretes the inhibitory neurotransmitter γ-amino butyric acid (GABA) onto the lateral posterior and geniculate nuclei, cutting off input to PSPL and visual centers in proportion to the reticular activation (Destexhe, 1998). During meditation, due to the increased activity in PFC, particularly in the right hemisphere, there should be a concomitant increase in the activity in reticular nucleus of the thalamus. The PFC activity causes activity to increase in the reticular nucleus during meditation, possibly causing a decrease in sensory input to the PSPL. Many researches have shown increased serum GABA concentration during meditation (Elias, 2000). This functional differentiation related to increase GABA would mean that fewer distracting outside stimuli would arrive at the visual cortex and PSPL enhancing the sense of focus. A PET study applying 11C_Raclopride to measure the dopaminergic tone during Yoga Nidra meditation demonstrated increasing the dopamine levels during meditation practice (Kjaer, 2002).

Posterior superior parietal lobule (PSPL) differentiation

The PSPL is mainly involved in the analysis and integration of higher-order visual, and some aesthetic information (Adair, 1995). It is also involved in the complex attentional network that includes the PFC and thalamus (Fernandez-Duque, 2001). This area of the brain has been important in the conceptual development of thebrain physiology of meditation. If, for example, differentiation of the PSPL via the reticular nucleus's GABAergic occurs, an individual may begin to lose his or her usual ability to spatially define the self and help to orient the self. Newberg and Iversen (2002) showed a significant correlation between increasedthalamic activity and decreasing activity in PSPL.

Hippocampal and amygdala activation

Meditation might be expected to alter activity in the limbic system, stimulation of which, is associated with experiences similar to those describe during meditation (Fish, 1993; Saver, 1997). Hippocampal stimulation has been shown to diminish cortical responsiveness and arousal. If, however, cortical arousal is initially at a low level, then hippocampal stimulation tends to augment cortical activity (Redding, 1967). During meditation, right PSPL deafferentationmay stimulate the right hippocampus because of the inverse modulation of hippocampus in relation to cortical activity. The right hippocampus may also be stimulated directly via the thalamus.

The hippocampus interacts with the amygdalain the generation of attention, emotion, and certain types of imagery (Joseph, 1996). Because of this reciprocal interaction between the amygdala and hippocampus, the activation of the right hippocampus likely stimulates the right lateral amygdala as well.

Hypothalamic and autonomic nervous system change

The hypothalamus is extensively interconnected with the limbic system. Stimulation of the right lateral amygdala has been shown to result in stimulation of the ventromedial portion of the hypothalamus with a subsequent stimulation of the peripheral parasympathetic system (Davis, 1992). Increased parasympathetic activity should be associated with the subjective sensation first of relaxation and, eventually, of a more profound quiescence. Activation of the parasympathetic system would also

cause a reduction in heart rate and respiratory rate. All of these physiological responses have been observed during meditation (Jevning,1992). Typically, when an individual's breathing and heart rate slow down, the paragigantocellular nucleus of the medulla ceases to innervate the locus ceruleus (LC) of the pons, which produces norepinephrine (NE) (Foote,1987). NE is a neuromodulator that increases the susceptibility of brain regions to sensory input by amplifying strong stimuli, while simultaneously gating out weaker activations and cellular 'noise' that fall below the activation threshold (Waterhouse,1998).The breakdown products of catecholamines, like NE and epinephrine, have been found to be reduced inthe urine and plasma during meditation (Walton K, 1995; Infate,2001). The locus ceruleusalso delivers less NE to the hypothalamic paraventricular nucleus, which secretes corticotropin-releasing hormone (CRH) (Ziegler,1999). CRH stimulates the anterior pituitary to release adrenocorticotropic hormone (ACTH) (Livesey,2000). ACTH, in turn, stimulates the adrenal cortex to produce cortisol, one of the body's stress hormones (Davies,1985). Decreasing NE from the locus ceruleus during meditation would likely decrease the production of CRH by the paraventricular nucleus, which would ultimately decrease cortisol levels. Most studies have found that urine and plasma cortisol levels are decreased during meditation (Walton, 1995;Sudsuang,1991;Jevning,1978).

The drop in blood pressure associated with parasympathetic activity during meditation practices would be expected to relax the arterial baroreceptors leading the caudal ventral medulla to decrease its GABAergic inhibition of the supraoptic nucleus of the hypothalamus. This lack of inhibition can provoke the supraoptic nucleus to release the vasoconstrictor arginine vasopressin (AVP), thereby constricting the arteries and returning blood pressure to its normal level (Renaud, 1996). Plasma AVP has been shown to increase dramatically during meditation (O'Halloran, 1985). This sharp increase in AVP should result in a decreased subjective feeling of fatigue and an increased sense of arousal. It could also help to enhance the meditator's memory of his experience, perhaps explaining the subjective phenomenon that meditative experiences are remembered and described in very vivid terms.

Prefrontal cortex (PFC) effect on other neurochemical systems

As a meditation practice continues, there should be continued activity in the PFC associated with the individual's persistent will to focus attention. In general, as PFC activity increases, it produces increasing levels of free synaptic glutamate in the brain. Increased glutamate can stimulate the hypothalamic arcuate nucleus to release b-endorphin (Kiss, 1997). β – endorphin (BE) is known to depress respiration, reduce fear, reduce pain, and produce sensations of joy and euphoria (Janal, 1984). Meditation has been found to disrupt diurnal rhythms of BE and ACTH (Infante,1998). Glutamate activates N-methyl-D-aspartate receptors (NMDAr), but excess glutamate can kill these neurons through excitotoxic processes (Albin,1992). Newberg proposed that if glutamate levels approach excitotoxic concentrations during intense states of meditation, the brain might limit its production of N-acetylated-a-linked-acidic dipeptidase, the enzyme responsible for converting the endogenous NMDAr antagonist N-acetylaspartylglutamate (NAAG) into glutamate (Thomas, 2000). The resultant increase in NAAG would protect cells from excitotoxic damage. There is an important side effect, however, since the NMDAr inhibitor, NAAG, is functionally analogous to the disassociative hallucinogens ketamine, phencyclidine, and nitrous oxide (Jevtovic-Todorovic, 2001). These NMDAr antagonists produce a variety of states that may be characterized aseitherschizophrenomimetic or mystical, such as out-of body and near-death experiences (Vollenweider, 1997).

Automatic- cortical activity

Several studies have demonstrated predominant parasympathetic activity during meditation associated with decreased heart rate and blood pressure, decreased respiratory rate, and decreased oxygen metabolism (Jevning, 1992;Sudsuang, 1991;Travis, 2001). However, a recent study found that two separate meditative techniques suggested a mutual activation of parasympathetic and sympathetic systems by demonstrating an increase in the variability of heart rate during meditation (Peng, 1999). The increased variation in heart rate was hypothesized to reflect activation of both arms of the autonomic nervous system. This notion is consistent with recent developments in the study of autonomic interactions (Hugdah, 1996) and also fits the

characteristic description of meditative states in which there is a sense of overwhelming calmness as well as significant alertness.

It should be noted that based upon current data, it is not clear if one hemisphere would exclusively initiate the neurological sequence of events over the other. This model presents the activity beginning in the right hemisphere, although other practices may activate the left first and some may be bilateral. Furthermore, it may be that the breakthrough of activity in the autonomic nervous system may help with the stimulation of brain structures in both hemispheres. The other point about the model as presented is that all of the changes could occur in both hemispheres even though some events are associated with only one of the hemispheres in the model presented.

Other neurotransmitter activity

Stimulation of the lateral hypothalamus can also result in changes in serotonergic activity. In fact, several studies have shown that after meditation, the breakdown products of serotonin (5-HT) in urine are significantly increased, suggesting an overall elevation in (5-HT) during meditation (Walton,1995). The cells of the dorsal raphe produce and distribute 5-HT when innervated by the lateral hypothalamus (Aghajanian, 1987) and also when activated by the prefrontal cortex (Juckel,1999). Moderately increased levels of 5-HT appear to correlate with positive affect, while low 5-HT often signifies depression (Van Praag, 1980). When cortical 5-HT2 receptors (especially in the temporal lobes) are activated, however, the stimulation can result in a hallucinogenic effect. Tryptamine psychedelics such as psylocybin and LSD seem to take advantage of this mechanism to produce their extraordinary visual experiences (Aghajanian,1999). These visual hallucinations seem to occur because 5-HT inhibits the lateral geniculate nucleus, greatly reducing the amount of visual information that can pass through (Funk, 1995;Yoshida, 1984). If combined with reticular nucleus inhibition of the lateral geniculate, 5-HT may increase the fluidity of temporal visual associations in the absence of sensory input, possibly resulting in internally generated imagery that has been described during certain meditative states.

Increased 5-HT levels can affect several other neurochemical systems. An increase in serotonin has an effect on dopamine suggesting a link between the serotonergic and dopaminergic systems that may enhance the feelings of euphoria (Vollenweider, 1999). Under circumstances of heightened activation, pineal enzymes can also endogenously synthesize the powerful hallucinogen 5-methoxy-dimethyltryptamine (DMT) (Monti,1981). Hyperstimulation of the pineal at this step, then, could also lead to DMT production that could be associated with the wide variety of mystical-type experiences associated with that hallucinogen.

Most currently available studies of the biological correlates of meditation suffer from a low number of subjects, lack of control conditions, and difficulty in factoring out confounding variables. Thus, it may be very difficult to assess if all of the brain structures and neurotransmitter systems function in an integrated manner such as suggested in this paper. However, the neurophysiological effects that have been observed during meditative states seem to outline a consistent pattern of changes involving certain keycerebral structures inconjunction with autonomic and hormonal changes.These changes are also reflected in neurochemicalchanges involving the endogenous opioid, GABA, norepinephrine,and serotonergic receptor systems.

Yoga, Meditation and Mind- body techniques

Yoga and meditation have been widely practiced for stress reduction. So far nosubstantial evidence in support of benefits of yoga, meditation is available. Yet the availability of some controlledstudies, which report on the overall cost-effectiveness and lack of sideeffects of mind-body techniques make their further investigations worthwhile (Nakao, et al., 1999). Clinical trials from many centers around the world are examining the effects of certain meditation techniqueson hypertension, particularly in the elderly and women.Some studies have found associations between decreases in cardiovascular markers of disease and the practices of prayer and meditation. A group of nuns (assumed to live contemplative and prayerful lives) were followed longitudinally for 30 years and were found to havemore stable blood pressure over time relative to a control group (Timio, 1997). Another controlled study of mindfulness meditation practice demonstrated decreased anxiety in women diagnosed with heart disease after an interval of practice (Tacon, McComb,

Caldera, & Randolph, 2003). The practice of yoga, including meditation and relaxation components, has been associated with decreases in respiration rate (Arambula, Peper, Kawakami, & Gibney, 2001), heart rate (Telles & Vani, 2002), and oxygen consumption, as well as with an increase in breath volume (Vempati & Telles, 2002). Zen Buddhist meditation practices have been found to increase heart rate variability (Kubota, Sato, Toichi, Murai, Okada, Hayashi, & Sengoku, 2001) and to decrease serum cortisol levels, vital capacity, diastolic blood pressure, systolic blood pressure, and heart rate (Sudsuang, Chentanez, & Veluvan, 1991). In one study,Zen Buddhism's practice of tanden breathing lowered respiration rate and increased heart rate variability (Lehrer, Sasaki, & Saito, 1999).

Stress reduction and biofeedback

The role of stress in causing hypertension is still not clear (Darwin and Carma, 2002) and the role of chronic stress in the causation of persistent hypertension has not been clearly demonstrated. However there is evidence of link between job-related stress to long term BP elevation (Kalpan, 1997). In addition, studies have found that applied short-term stress can be associated with short-term increases in BP (Schnall, Schwartz, Landsbergis, Warren, and Pickering, 1998). The role of surges of blood pressure due to acute stress needs to be evaluated (Anand, 1999). A meta-analysis of 26 studies of BP control through behavioral or cognitive modifications by techniques such as stress reduction, progressive relaxation and biofeedback or meditation, found that cognitive therapies were better than no therapy in controlling BP, but where no better than sham therapies and self-monitoring (Eisenberg, Delbanco, et al.,1993). However there are few small clinical trials, which show that biofeedback intervention is effective in mild hypertension (Henderson, Hart, Lal, and Hunyor, 1998; Nakao, Nomura, Shimosawa, Fujita, and Kuboki, 2000; and. Luskin, et al., 1998).

Acupuncture

It is a widely practiced therapeutic modality used forvarious conditions. However there is no published clinicaltrial to suggest unequivocal indication of its efficacy intreating hypertension (National Institute of Health Consensus Development Conference Statement. Acupuncture, 1997) Many small case control studies

haveshown evidence of the potential usefulness of acupuncture in treating HBP but other studies provide equivocal results.

2.2.8 SKT techniques

Public health nursing has been concerned with finding effective, in-expensive and non-time consuming interventions to control blood pressure at the community level. Somporn Kantaradusadee Triamchaisri (SKT) was developed in 1994 as holistic intervention totreat highblood pressure and chronic diseases. Reports have demonstrated its effectiveness in improving outcomes in patients with chronic diseases such as cancer, diabetes mellitus, pain relief, HIV-AIDS patient, and hypertension as well. (Krachangdan, 1998; Pilasorn,1998; Setakasikorn,1998; Mekwiwatanawong, 2000; Ampunsiriratana2003). SKT techniques have the advantage of being affordable, not requiring additional costly equipment, and being practical in any location. SKT has been adopted by The Thai Ministry of Public Health to use in the project of meditation for holistic self healingand cell healing in chronic disease. The participants of the project are nurses and health care providers in seventy-six provinces of Thailand.

The SKT techniques involve seven different practices that are applied individually to treat conditions. The seven techniques are:

1. SKT 1, sitting breathing meditation exercise
2. SKT 2, standing breathing meditation exercise
3. SKT 3, sitting stretching-strengthening meditation exercise
4. SKT 4, Thai walking meditation healing exercise
5. SKT 5, Thai stretching-strengthening meditation healing exercise
6. SKT 6, Thai imaginary meditation healing exercise
7. SKT 7, Thai qigong meditation exercise

The SKT technique was developed on a holistic philosophy of self-healing and cellular reparative mechanisms. The technique employs meditative breathing and mind-body exercises, which have an effect on human psychoneuroimmunology. Many

researchers suggest that the control and training of the five senses - sight, sound, smell, touch and taste - along with body movement, have certain effects on the functions of the central nervous system, peripheral nervous system, autonomic nervous system, immune system, cardiovascular system, and limbic system which control human emotionsand behavior. Experts have found that when our body and mind work in perfect harmony, it results in the balance of our body and nerve cells.

Mechanism ofSKT techniquetoimprovehealth

SKT technique is a meditative practice tobalance the functions of two nervous systems (sympathetic and parasympathetic nervous systems. Kantharadusadee (2007), the technique's developer, suggests that the breathing component of the practice, specifically the rate, triggers neurophysiologic changes in the nervous system, which affect other physiological systems. Rapid breathing stimulates the sympathetic nervous system, which causes a rise in heart rate similar to the effect seen after aerobic exercises. SKT practice with slow breathing can also stimulate the release of beta-endorphin, which promotes a feeling of happiness and general well-being.

A SKT technique practiced with a slower respiratory rate (breathing meditation) is more helpful to bring about states of calmness by stimulating the parasympathetic nervous system and the right side of the brain. Apart from beta-endorphin that creates a sense of happiness; slow breathing will relax the central nervous system. Slow deep breathing reduces glutamate acid concentration, which is a workhorse neurotransmitter of the brain, while increasing GABA (Gamma Amino Butyric Acid), which mediates sensory perception. Increased GABA levels, allows better control of sensory perception and stress reduction. The SKT technique suggests 10 minute practices as an antidote to frustration and aggression, in daily life. Along with the effects of GABA in the central nervous system, peripheral affects of breathing meditation, include physical body and cellular changes associated with more relaxed and homeostatic states. There is a general feeling of wel1-beingas responses associated with rest and energy conservation, will function better. The hypothalamus, which is responsible for of blood pressure, heart rate and temperature, functions more efficiently. It makes a person calmer while stimulating the secretion of several

neurotransmitters and pituitary hormones, including serotonin which works to ease stress and acetylcholine that boosts short-term memory, thus causing a person to have good consciousness. Serotonin is a precursor to melatonin, which increases cell life longevity.

SKT technique and healing of the illnesses

The hypothalamus inhibits the production of dopamine, which is responsible for the degenerative changes of Parkinson's disease and arginine vasopressin (AVP), which regulates the kidneys' function. Hypothalamic activity also reduces levels of the “stress hormone,” cortisol and the “fight or flight” response catecholamines. These physiologic changes are associated homeostatic states with improved immune and cardiovascular function. Consistent deep breathing leads to reduced levels of damaging free radicals and other harmful products cellular activity. This supports the body’s natural healing activities.

SKT techniques, practiced as a healing modality differs from spiritual meditation practiced in its focused intension on the quality of the breath. Spiritual meditation practice uses the breath as a focus for concentrating the mind to achieve peaceful states healing. SKT breathing techniques, as defined in the breathing meditation practice (SKT 2) emphasizes the quality of the inhaled and exhaled breaths to affect body physiology. The practice recommends repeated slow mindful inhalations and exhalations with a sustained breath-hold. Kantaradusadee (2007) stresses the importance of consistent prolonged (at least 8 weeks) practice of SKT in order to achieve sustainable clinical goals.

SKT techniques and the moving meditation.

SKT techniques also incorporate mindful movement techniques to complement the meditative components of the practice. The body movements, that are elements of the SKT 1 and 7 techniques, include walking, standing, sitting and stretching practices that work with the mind body connection to produce physical and mental balance and improve health.

The effects of SKT techniques on patients

SKT has been successfully applied to improve outcomes in patients with diabetes mellitus, cancer, HIV/AIDS and chronic renal insufficiency (Krachangdan, 1998; Pilasorn,1998; Setakasikorn,1998; Mekwiwatanawong, 2000; Ampunsiriratana 2003). SKT was shown to reduce serum blood glucose levels in diabetic patients, after participating in a structured program. Similar benefits have been demonstrated in hypertensive patients and those suffering from cardiovascular disease. Studies of patients with a variety of cancers reported decreased white cells and cancer burden. Additionally, patients with psychosomatic disorders showed improvement in symptoms after practicing laughing meditation.

Yoga meditation was found helpful for street children and prison inmates, to reduce drugs use, symptoms of insomnia, improve appetite, and lessening of anxiety. Burn victims benefited from meditation practice in improved sleep quality, sense of well-being and improved pain.

SKT techniques and blood pressure control

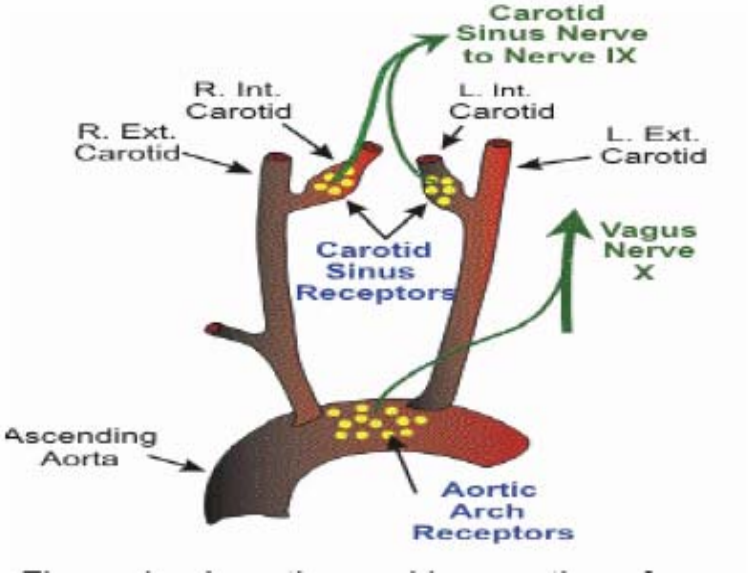


Figure 2.2 Carotid sinus and Aortic arch receptors

Figure 2.2 demonstrates the mechanism by which blood pressure is controlled by baroreceptors in the carotid sinus and aortic arch, mediated by signal reflexes through CN IX and X, respectively. The baroreceptors are activated by an increases in intraluminal arterial blood pressure and send signals through the glossopharyngeal (IX) and vagus (X) nerves to the nucleus of the solitary tract (NTS) in the brainstem. Through a negative feedback (GABAergic) the NTS inhibits sympathetic output from the rostral ventrolateral medulla, ultimately resulting in a reduction in blood pressure. During SKT2 practice the carotid baroreceptors are activated by the stretching action anf external pressure of the practitioners arms as they are raised above the head , against the ears to provide additional stimulus to reduce blood pressure.

The drop in blood pressure associated with parasympathetic activity during meditation practices would be expected to relax the arterial baroreceptors leading the caudal ventral medulla to decrease its GABAergic inhibition of the supraoptic nucleus of the hypothalamus. This lack of inhibition can provoke the supraoptic nucleus to release the vasoconstrictor arginine vasopressin (AVP), thereby tightening the arteries and returning blood pressure to its normal level (Renaud, 1996). Infact, plasma AVP has been shown to increase dramatically during meditation (O'Halloran, 1985). The sharp increase in AVP should result in a decreased subjective feeling of fatigue and an increased sense of arousal. It could also help to enhance the meditator's memory of his experience, perhaps explaining the subjective phenomenon that meditative experiences are remembered and described in very vivid terms.

The results of applying this technique from the participants of this project were more satisfied because this technique was useful of their patients epically, among person with hypertension found that systolic and diastolic blood pressure was reduced at reach 30 -40 mmHg. However, the more suitable technique for blood pressure control when compare among all of SKT 1 to SKT 7 the result that participant suggest is SKT 2. (record of the project of meditation for holistic self healing and cell healing: the north region; east region; and north-eastern region of Thailand , July 28 – 30,2009)

SKT 2 Technique.

SKT 2 technique is standing breathing meditation exercise, that is practiced in the following manner.

1. The practitioner is instructed to stand firmly and comfortably with the feet shoulder width apart.

2. The arms are raised straight above the head so that they are against each ear and the palms are pressed together above the head.This stretching action causes the carotid sinuses to be activated through the mechanism of thebaroreceptors and CN9 and CN10 that subsequently control the blood pressure level.

3. The practitioner then gently closes her eyes and with the tip of the tongue on against the palate, takes a deep, full inhalation breath through the nose.

4. The breath is held for 3 to 4 counts then slowly released with a gentle exhalation through the mouth.

5. The practitioner should remain peaceful and mindful of the breathing and the posture throughout the exercise.

6. This is repeated 30 times.

Thus, this present study will apply SKT 2 technique as intervention for blood pressure control.

2.3 The approach application of Chronic Care Model for blood pressure controlled

The well-studied and validated interventions (Wagner, 1998; Wagner 1996; Von Korff, 1997; Bodenheimer et al., 2002;Casalino et al., 2003) that comprise the CCM are: community resources and policies, healthsystem organization, self-management support, delivery system design, decision support, and clinical information systems. **Community Resources** acknowledges the growing importance

of linking patients with community programs and services to mobilize these resources to meet patient needs. As professionals, we are challenged to:

- Encourage patients to participate in effective community programs, particularly exercise and educational programs.

- Partnerships with community organizations to identify, support, and develop interventions that fill gaps in needed services, including the creation and dissemination of resource guides, development of outreach programs using lay workers/ health coaches, and the sponsorship of community events.

- Advocate for policies to improve patient care, including the crafting of messages for the public.

Organization of Health Care addresses the culture and policies of the system in which care takes place. The mission, business plan, and goals of your organization must clearly promote safe, high-quality care. Organization leaders are role models who:

- Visibly support improvement at all organizational levels, starting with the leadership team.

- Endorse effective improvement strategies aimed at comprehensive system change.

- Encourage open and systematic handling of errors and quality problems to improve care.

- Provide incentives based on quality of care. Develop agreements that facilitate care coordination within and across organizations.

- Develop agreements that facilitate care coordination within and across organizations.

Self-management support includes activities that empower and prepare patients to understand their health behaviors and to develop strategies to live life as fully as possible. Simultaneously, as the most rewarding yet most challenging CCM component, we strive to:

- Emphasize the patient’s central role in managing his health.

- Use effective, culturally competent self-management support strategies that include assessment approaches, goal setting, action planning, problem solving, and follow-up.

- Organize internal and community resources to provide ongoing self-management support to patients.

Delivery system design refers to the organization and scheduling of planned Proactive care to assure effective, efficient clinical care, and self-management support. The key features of delivery-system design include the need to:

- Define roles clearly and distribute tasks among empowered team members.

- Use planned interactions, including group medical appointments for self-management training, to support evidence-based care.

- Provide clinical case-management services (when available) for complex patients.

- Ensure regular follow-up by the care team.

- Give care that patients understand and that fits with their cultural background.

Clinical information systems allow practices to integrate patient and population data to facilitate efficient, effective, and proactive care. Electronic patient tracking tools, such as electronic disease and population health registry modules, are essential to: Improve patient health outcomes and promotion of early intervention strategies.

- Provide timely reminders and feedback to patients, health care managers, and providers.

- Identify relevant subpopulations based on specific or multiple clinical parameters (conditions, comorbidities, evidence-based measures, etc.) for proactive care. Facilitate individual and patient population care planning.

- Share information with patients and providers to coordinate care and support self-care and self-education about relevant evidence-based guidelines.

- Monitor performance of practice teams and the care system.

- Reduce clinical practice variation by embedding evidence-based measures that describe care pathways into daily clinical practice.

- Improve patient safety by reducing medication errors of omission or commission.

- Establish connectivity to other clinical stakeholders so information between providers and patients can be shared [primary care provider (PCP)-referred specialist, health plan disease management nurses, patient self-report health risk assessment survey results for PCPs, etc.].

- Reduce malpractice liability costs by documenting conformity with defensible medical standards.

- Automate reporting and assessing of outcomes for individuals and patient populations.

- Save time with easy access to clinically useful information on individuals as well as groups of patients.

Decision support promotes clinical care that is consistent with scientific evidence and patient preferences through several mechanisms:

-Embed evidence-based guidelines into daily clinical practice by implementing protocols, reminders, and the use of standing orders that make it easy to do the right thing for each patient.

- Share evidence-based guidelines and information with patients to encourage their participation.

- Use proven provider education methods, such as academic detailing and motivational interviewing that inspire behavior change.

- Integrate specialist expertise with primary care through regular access and discussion.

In order to manage the chronic conditions successfully it is advisable to focus on team based care and readjust the priorities from acute conditions that are creating more complexity in rapidly fragmenting health care systems and over burdened with various incentives for the patients and healthcare staff. The results by the application of CCM show improved patient outcomes and improved health care providers' productivity. As described by Wagner et al. (1998) that in order to get improved outcome through the chronic care model it is necessary to use scientifically

based clinical guidelines and other techniques, with focus on the self management support to the patients. Thus effective management of chronic conditions, best clinical decisions based upon scientific evidences and most appropriate medicines for the treatment provides improved outcomes. Using self-management support is the patient centered approach that ensures the increased participation of the patients themselves and with the collaboration of healthcare team goal settings and planning for care can be decided as a part of treatment plan. Studies explored that positive relationship of CCM with patient centered approach. Therefore it is concluded that chronic care model is both evidenced based and patient centered. Both of these are properties of a complete healthcare system and not for individual practitioners.

2.3.1 The study related to CCM

The CCM with its six components–healthcare organization, self-management support, delivery system design, decision support, community, and information system – provides all the basic requirements for any health system to improve the quality of care for chronic conditions. The emphasis lies on a proactive healthcare team and the outcome is well informed and activated patients. Improved outcomes are seen when the combination of patients who take an active part in the management of the disease and care process and providers with all the available resources (Wangner, 1998).

The CCM is a framework of six interrelated components; self-management support, decision support, delivery system design, healthcare organization and community. The result of collective application of these components results in well informed and activated patients; and proactive healthcare team (Bodenheimer, et al., 2002). CCM improves the quality of service on one hand but also reduces the cost of health care. Taking the example of diabetes, based on the research findings of thirty-two out of thirty nine studies it was found that effectively using the CCM, there was improvement in at least one process. To understand that chronic care model can reduce the costs, taking the examples of two chronic conditions (asthma and congestive cardiac failure) out of twenty-seven studies, eighteen indicated that there was

reduction in the total costs. It proves the effectiveness of chronic care model in the management of chronic diseases and reducing the total costs (Bodenheimer, et al., 2002). The chronic care model it is necessary to use scientifically based clinical guidelines and other techniques, with focus on the self-management support to the patients. Thus effective management of chronic conditions, best clinical decisions based upon scientific evidences and most appropriate medicines for the treatment provides improved outcomes. Using self-management support is the patient centered approach that ensures the increased participation of the patients themselves and with the collaboration of healthcare team goal settings and planning for care can be decided as a part of treatment plan. Studies explored that positive relationship of CCM with patient centered approach. Therefore it is concluded that chronic care model is both evidenced based and patient centered. Both of these are properties of a complete healthcare system and not for individual practitioners. (Wagner et al., 2005)

Moreover, the study to improve blood pressure control such as a study of Baynouna, et al. (2010) in a successful chronic care program in Al Ain-United Arab Emirates with objective to improve the care of patients with the highly prevalent disorders of diabetes and hypertension, conducted in one of the major cities of the United Arab Emirates. The result showed that the intervention was successfully implemented in all the health centers and there was also improvement in those parameters reflecting outcomes of care, which included blood pressure.According to a Effectiveness of Home Blood Pressure Monitoring, Web Communication, and Pharmacist Care on Hypertension Control: A Randomized Controlled Trial of Green, et al (2008), found that the intervention group compared with usual care, the patients who had baseline systolic BP of 160 mm Hg or higher and received home BP monitoring and Web training plus pharmacist care had a greater net reduction in systolic BP and diastolic BP and improved BP control.

2.4 Intervention to control blood pressure

A wide variety of interventions to improve hypertension care have been evaluated. Therefore, some studies have aimed to improve access to care, such as through community-wide programs (Kaplan, Greenfield, and Ware, 1989; Kotchen, McKean, and Jackson- 1986; Krishan, Brennan, and Nobrega, 1979).In this section, focus on interventions that involve patients who are already in the health care system in community. These may be classified as provider-oriented, patient-oriented, or disease management programs.

2.4.1 Disease management programs

Special hypertension programs have existed for years. As early as 1972, the Veterans Administration implemented a program in which patients with hypertension were managed by specially trained nurses or physician assistants under physician supervision. Several randomized interventions in non primary care settings or by non-physician health care professionals have been evaluated. A study of work site management of blood pressure by specially trained nurses found better control at 6 months in the nurse-supervised group(Christensen, Williams, and Goldberg, 1997). However, a smaller follow-up study found no significant difference in blood pressure at 1 year (Logan, Milne, and Flanagan, 1983). In this study, medication adjustments were made by the nurse. In a home blood pressure monitoring program with patient self-measurement and telecommunication, where weekly blood pressure reports were sent to the primary care physician and the patient, the monitored group had a measurable improvement at 8 weeks(Rogers, Small, and Buchan, 2001). Medication and dosing changes were recommendened by the primary care physician as deemed necessary. Artinian et al (2001), compared 3 programs: a nurse-managed home telemonitoring program plus usual care, a nurse-managed community-based monitoring program plus usual care, and usual care. Again, the primary care provider received weekly blood pressure reports and could alter medications as appropriate. At 3 months, both intervention groups had improved blood pressure control. Another

study compared the management of hypertensive patients by physician-pharmacist teams with usual care by the physician only (Bogden, Abbott, and Williamson, 1998).

2.4.2 Tools and interventions to control blood pressure

2.4.2.1 Provider-oriented interventions

There is extensive literature on changing providers' practices in a variety of clinical areas. Methods used include education, audit and feedback, computerized clinical decision support systems, use of local opinion leaders, provider involvement in quality improvement, and incentives (Greco and Eisenberg, 1993). A few of these have been applied to hypertension management. No method has been universally effective. In terms of education, an early study in an academic medical clinic found that a tutorial providing physicians with information on hypertension resulted in improvedblood pressure control (Inui, Yourtee, and Williamson, 1976). However, subsequent studies of educational interventions have found small improvements in screening and follow-up for hypertension, butno improvement in blood pressure control, even whencombined with feedback or physician involvement in setting local criteria (Dickinson, Warshaw, and Gehlbach, 1981; Putnam, and Curry, 1989; Evans, Haynes, and Birkett, 1986; Gullion, Tschann, and Adamson, 1988; and Jennett, Wilson, and Hayton, 1989)

Educational interventions to control blood pressurecenter onpatient-physiciancommunication to teach strategies toidentify and deal with patient non-adherence during themedical interview. Inui, Yourtee, and Williamson (1976), found that patients of thephysicians enrolled in the tutorial intervention were moreknowledgeable about their drug regimens, were moreadherent, and had lower blood pressures. The ineffectiveness of these later educationall interventions further suggests that lack of knowledgeregarding blood pressure management is not a significantbarrier (Dickinson, Warshaw, and Gehlbach, 1981; Putnam, and Curry, 1989; Evans, Haynes, and Birkett, 1986; Gullion, Tschann, and Adamson, 1988; and Jennett, Wilson, and Hayton, 1989). However, it is not clear whether any ofthese educational studies explicitly dealt with settingthresholds for blood pressure treatment and how to treatto these targets.

Computer decision support systems, including computerized clinical reminders and electronic feedback systems used as part of audit and feedback intervention, have been evaluated in at least 11 studies to assist in implementing hypertension guidelines. (Inui, Yourtee, and Williamson, 1976; 76. Bulpitt, Beilin, and Coles, 1976; Coe, Norton, and Oparil, 1977; Barnett, Winickoff, and Morgan, 1983; McAlister, Covvey, and 1986; McDowell, Newell, and Rosser, 1989; Montgomery, Fahey, and Peters, 2000; Rossi and Every, 1997; Rogers, Haring, and Wortman, 1982; Hetlevik, Holmen, and Kruger, 1999; and Winickoff, and Wilner, 1985).

Academic detailing and opinion-leader influence have been effectively used to change practice in many clinical areas. Academic detailing involves educating individual physicians in their practice settings by trained people, such as opinion leaders. On the basis of thesocial influence model of behavior change, local opinion leaders may be used to transmit norms and model appropriate behavior, thereby improving the practice of their colleagues (Soumerai, McLaughlin, and Gurwitz, 1998).Only one randomized trial used academic detailing with an opinion leader, both alone and combined with continuous quality improvement teams(Goldberg, Wagner, and Fihn, 1998). Opinion leaders from each site did an initial detailing session and follow-up, with feedback, was performed by clinic pharmacists. Neither strategy improved hypertension care or control compared with usual care, although this study was fairly small, involving 4 sites with 15 practices.

In a nonrandomized trial of peer review audits, physicians appointed from local practices similar to opinion leaders, discussed hypertension guidelines with their practice group and proposed criteria for measuring adherence to these guidelines. These physicians then brought their ideas to a study meeting where they determined audit criteria by consensus. After a 12-month auditing period, there was no significant effect upon blood pressure control (Mashru, and Lant, 1997).This study suggests that getting physician participation and agreement with standards of hypertension care is still not enough toimprove control. Further, using physicians' peers for education or informing physicians of how they compare in performance has had minimal effect on blood pressure control.

2.4.2.2 Patient-oriented interventions

Many studies have attempted to improve adherence among hypertensive patients. However, most were fairly small with only short-term outcomes, and relatively few were randomized trials that used blood pressure control as an outcome. Studies that have attempted to improve adherence and blood pressure control have used strategies including patient education, changes in dosing schedule, special reminder packaging, self-monitoring, enlisting family support, increasing convenience of care by provision at patients' work sites, and specialized care with non physician professionals such a nurses and physician assistants.

The few educational programs that included blood pressure as an outcome have had variable results. One intervention measured self-reported health status anddiastolic blood pressure readings and had a favorable effect on diastolic blood pressure, as well as on measured behaviors. Patient control of the interview, expressedaffect by both physician and patient, and physician provided information in response to patient questions were related to better health status and lower blood pressure (Kaplan, Greenfield, and Ware, 1989). In 2 studies of educational programs given to hypertensive inpatients, one found a significant improvement in blood pressure and self-reported adherence at 8 weeks,(Gonzalez-Fernandez, Rivera, Torres, 1990), but the other found no difference between groups at 6 months (Roca-Cusachs, Sort, Atlimira, 1991). Watkins et al, (1987) mailed a booklet on hypertension to hypertensive outpatients and found no difference in blood pressure control at 1 year

As previously mentioned, studies have shown that patients on simpler medication regimens adhere better to prescribed medications. Surprisingly, this has not always resulted in improved blood pressure control. Studies of once-daily versus twice-daily dosing showed no effect on blood pressure, and sometimes resulted in higher blood pressures, even though adherence was improved (Baird, Bentley-Taylor, Carruthers, 1984; Girvin, McDermott, and Johnston, 1999). Special packaging designed to remind subjects to take their pills had no effect on blood pressure (or adherence) (Becker, Glanz, and Sobel, 1986). However, elderly hypertensive patients had better adherence and lower blood pressure when given drug bottles that had an electronicadherence aid cap versus a regular one (McKenney and Munroe, 1992).

Self-monitoring has also had mixed results. Two early studies using patient self-monitoring of blood pressure found no effect on blood pressure control (Haynes, Sackett , and Gibson, 1976; Johnson L, Taylor, Sackett,. 1978). One of these studies also taught tailoring strategies, and both studies included visits and reinforcement by a research assistant. A study of a patient-led clinic that encouraged patients to take responsibility for their management, including self-measurement and selecting drugs, found lower diastolic pressures at 8 weeks (Nessman, Carnahan, and Nugent, 1980). A more recent study found that an automated telephone system for monitoring and counseling patients can lead to improvements in adjusted diastolic, but not systolic, blood pressure (Friedman, Kazis, Jett, 1996).

One of the longest intervention studies found that family support resulted in better blood pressure control and attendance at follow-up appointments, but lower self-reported pill taking after 5 years. However, dropout rates in this study were relatively high: 28% in both groups (Morisky, DeMuth, Field-Fass, 1985).

The challenge of changing patient behavior has been emphasized by others. Metaanalyses of interventions for assisting patients to follow prescriptions concluded that “current methods of improving adherence for chronic health problems are mostly complex and not very effective”(Haynes, McDonald, and Garg, 2002).Another review concluded that “complex interventions involving education, easier access to care, and use of protocols may improve adherence and control in some patients”(Ebrahim, 1998). Surprisingly, interventions targeted at both physicians and patients have been less successful than those targeted at either alone(Grimshaw, Shirran, and Thomas,2001).

2.4.3 Barriers to achieving blood pressure control.

Low adherence to recommended medications is a major barrier to achieving blood pressure control goals. The reasons for low adherence levels are multi-factorial and include; patient belief system, lack of consistent medical follow-up, provider failure to appropriately adjust medications resulting in non-compliance from medication side effects, lack of economic resources, and poor access to health

facilities (Siegel, 2005). Barriers to blood pressure control have been categorized in to three groups, 1. Patient factors, 2.Physician factors and 3.Healthcare system factors (Ogedegbe, 2008). Patient factors include poor knowledge and attitudes about hypertension, non-compliance, medication side effects and medication costs. Proactive interventions are required to mitigate these factors including clear patient-physician communication, community education programs and improved access to healthcare personnel and facilities. Studies have underscored the importance of educating the public on hypertension, and other chronic diseases and their complications to empower and motivate individuals to seek out health mainatanace practices. Provider factors include inadequate knowledge, insufficient human resources, lack of awareness, and lack of incentive to encourage hypertensive preventive behavior. An important provider-related factor that negatively effects realization of clinical goals is “clinical inertia”, whereby clinicians fail to implement recommended medication adjustments, leading to poorly controlled blood pressure (Roumie et al. 2007). A related issue is lack of awareness by clinicians of the significance of blood pressure monitoring and education. Lin et al reported that clinicians frequently do not appropriately prioritize hypertension in their practice. These provider based factors are being addressed by providing continuing clinician education, using physician extenders to improve outreach and providing incentive programs to motivate healthcare.

Health system factors include inadequate access to facilities and lack of policy and infrastructure to support public health awareness effort. A coordinated effort is required at all levels of government, in collaboration with local community groups to educate the public on the consequences of uncontrolled hypertension. Recent efforts to address this issue have sought healthcare facilitators, proactive practice teams, to act as mediators and educators between communities and governmental health agencies. National and provincial initiatives, backed by supportive public health policy and adequate financial and human resources, a required to ensure proper implementation of hypertension control programs.

2.4.4 Facilitators for achieving blood pressure control.

Ogedegbe et al. (2004) reported five categories of facilitators of medication compliance and blood pressure control in a African American hypertensive patients; use of reminders, maintaining a routine, improving knowledge about hypertension, its treatment and complications, social support system and effective patient-doctor communication.An important function of healthcare workers is to encourage patients to adhere to prescribed treatment regimens. This involves educating patients of the necessity of the strict adherence and providing regular reminders to treatment goals and routine interventions (reviewing medication doses). A pilot program to improve hypertensive medication adherence in Medicaid patients, employed care managers to manage patients individual tailored treatment programs and provide individual phone reminders to patients. The study showed improved medication adherence among study participants, presumably by allowing the care mangers to tailor interventions to participants specific concerns, and health goals (Boswort, 2011). More recently, the e-health communications in the form of SMS messages, email and other digital media are being employed to encourage beneficial healthcare outcomes (Neuhauser, 2003). Whitehead et al (1984) stressed the importance of using local indigenous individuals as educational facilitators, as a way to maintain trust and ensure that healthcare providers are aware of the local context as they implement health care interventions. Deliberate and focused hypertension education efforts leads to increased public awareness, and subsequent increase in hypertension diagnosis and treatment community (Onysko, 2006).

Social support as been widely reported to facilitate hypertension control efforts and improve outcome in hypertensive patients (Morisky et al, 1985, Stanfeld, 1999). The use of established social support systems, such asfamily, workplace, community groups and religious groups can compliment public health efforts and improve healthcare outcomes (Eng, 1985). Social support is particularly important in the management of chronic diseases that require continuous attention and vigilance by the patient.

2.4.5 Proactive practice team

The healthcare team plays an important role in achieving identified healthcare goals. The concept of a proactive practice team has been integrated into the Chronic Care Model with the aim to better manage chronic diseases to improve outcomes and reduce costs. The proactive team plays a critical role in interfacing between the informed, motivated patient and the various components of the healthcare system. The characteristics of an effective proactive practice team include 1. Maintaining a patients-centered approach to care, 2. Acquiring a complete and relevant skill and knowledge base, 3. Acquiring adequate experience with the patient to build trust and confidence and 4. Maintaining patient awareness and consideration for appropriate application of interventions. A key function of the team is to be proactive advocates for their patients, through focused knowledge acquisition and fostered autonomy (Holland, 1999). Such practical support, through specific goal setting and proactive follow-up, leads to improved clinical outcomes, cost-effectiveness and patient empowerment (Gensichen et al. 2009, Green et al. 2008).

Summary research review

Hypertension is a chronic disease that is a risk factor of other disease and violent complication such as ischemic hearth, stroke, or renal disease that is dangerous to life. Although this disease cannot be cure absolutely, the patients can control blood pressure by develop performing the appropriate behaviors continuously and encouraging the continuity of medication taking. Factors related to blood pressure control, in this study are included personal factors (demographic characteristics, perception, and social support), non- medication factors (lifestyle modification), medication factors, and medical environment (access to care, the patient-provider interaction and feature of practice setting), mind and body therapies (relaxation, meditation, imagery, hypnosis, biofeedback and SKT technique). Moreover, the researcher findings presented show that some factors are associated with blood

pressure control whereas some factors are not. In additional, the interventions to control blood pressure are variety of interventions to improve hypertension care have been evaluated whereas some are effectively control blood pressure.

Therefore, Patients have unique sets of characteristicsand factors related to blood pressure control. In this study, the researcher is interested to explore factors related to using SKT technique to control blood pressure and determine the appropriate intervention to control blood pressure in community of Thailand.

CHAPTER III
MATERIALS AND METHODS

This chapter provides details of research design, population and setting, protection of human subjects, instrument data collection, and data analysis.

3.1 Research Design

The present study is a mixed-method study with the aim1) to explore the barriers and facilitators factors of using SKT-2 technique to control blood pressure in the community setting and 2) to develop an appropriate intervention for improving blood pressure control in community for hypertensive persons at Kae rai district health promotion hospital.

Qualitative and quantitative methodologies were employed to develop a model that defines the interaction of the proactive practice team and hypertensive patients to control blood pressure using the SKT-2 technique in the community. This study was organized into three phases. In the first phase the researcher performed in-depth interviews with the two groups of participants, the members of the proactive team and the group of hypertensive patients. The in-depth interviews were designed to explore factors related to the barriers and facilitators for using the SKT-2 technique to control blood pressure. The second phase created a proactive practice team of volunteer community health workers, based on data from the first phase. The data from the interviews and the focus groups was then applied to create an appropriate community based blood pressure control intervention around the SKT-2 technique. The third step was the quasi experimental trial (pre-posttest in eight-weeks), implementation of the intervention designed in phase 2, with monitoring and evaluation of blood pressure levels and assessment of participants' knowledge and attitude to the practice of SKT-2 technique.

3.2 Study setting

This study was conducted at the hypertension clinic of Kae rai District Health Promotion Hospital in Kae rai sub district of Kratumban district. The hospital is located 5 km west of Kratumban and about 9 km from the city center. The majority of the surrounding land in industrial or farmland and the main mode of transportation among the local population are by motorcycle or bus. The most common occupations in the sub-district are farming and industrial labor. The hospital has four health care providers, including two nurses, and thirty-three village health volunteers who are responsible for delivering medical care to the local population. There were 237 hypertensive persons living in Kae rai sub district, 54 of who received antihypertensive medications from the hypertension clinic. Twenty five to thirty patients regularly visited the clinic physicians every two weeks for assessment and treatment of their hypertension. The Kae rai district health promotion hospital is generally closer and more convenient for the local population to travel to than the larger community hospital, Krathumban hospital.

3.3 Population and Samples

The study population included two groups, identified hypertensive individuals within the community and selected local health care workers.

1) The study included all the hypertensive persons who received treatment at the hypertension clinics of Kae rai District Health Promotion Hospital, Samutsakorn province in Thailand. The patients were invited to participate in this study upon meeting the following inclusion criteria,

Inclusion criteria

1. Having a diagnosis of hypertension and at least 2 clinical visits with a physician at the hypertension clinic or primary care unit

2. Having a SBP≥140 mmHg and /or DBP ≥90 mmHg.

3. Familiarity and training in SKT-2 technique for blood pressure control.

Exclusion criteria

1. Inability to verbally communicate with the researcher due to hearing loss, mental confusion.

2. Inability to fill medication prescriptions.

2) The study included a select group of nurses and volunteer health care providers who worked in the hypertension clinic at Kae rai District Health Promotion Hospital. The group consisted of four professional health care providers, 2 academic staff nurses and two public health officers. In addition, 33 village health volunteers, who were involved with care the hypertensive persons, were recruited. The inclusion and exclusion criteria met by members of the healthcare team were as follows.

Inclusion criteria

1. Nurses,health care providers and village health volunteers who worked in the hypertension clinic of Kae rai District Health Promotion Hospital with responsibility for hypertensive patients in Kae rai district.

2. Familiarity and training in SKT technique for blood pressure control.

Exclusion criteria

1. Inability to verbally communicate with the researcher due to hearing loss, or mental confusion.

Sample size

1. The appropriate study sample size was determined according to the principle of Polit and Hungler (1999: 299).

Hypertensive persons

1. A review of the hypertension clinic records at Kae rai District Health Promotion Hospital identified 54 patients who regularly attended the clinic.

2. A power analysis was performed to determine the appropriate sample size (Polit and Hungler, 1999). The estimated sample size for this research was

estimated to be in the range of between 20 and 30 participants, and our study accrued 24 hypertensive individuals.

Nurse and health care provider

1. All the of nurses and public health officers (two-nurse; two-public health officers) who were involved in caring for hypertensive patients were invited to participate in this study.

2. These professional staff selected 33village health volunteers by consensus.

3. The 33 village health volunteers were selected if they directly cared for hypertensive patients in the clinic.

4. The village health volunteers were geographically mapped to locations corresponding to the hypertensive patients' locations.

5. The ratio of village health care volunteer to hypertensive patients was 3:1 thus number of village health care volunteer was 8 persons.

3.4 Materials and Methods for Data collection

The study employed questionnaires and data collected from discussion techniques to obtain relevant data. These included (1) demographic variables questionnaire, (2) a questionnaire to access knowledge about SKT technique, (3) a questionnaire to assess attitudes toward the practice of SKT technique, (4) a survey of participants' experience with SKT technique, (5) data from in-depth interviews with participants and, (6) data from a focus group discussion with participants.

Quantitative data:

Data collection exercises where held during regular clinic hours for the hypertension clinic. All patients attending hypertension clinics during data collection period was invited to participate in this study. The investigator informed subjects that study is to explore their personal background characteristics, medication adherence,

knowledge of SKT technique, and attitudes about SKT technique and health perception as the baseline prior to the intervention. All participants completed written informed consent prior to participating. The researcher narrated the questions to the subjects and completed the questionnaire forms. Additional data, like current blood pressure measurements and medication lists were entered from the patient's medical record. Total time spent in giving instruction, interviewing and filling out the questionnaire was about 30-45 minutes.

Participants were instructed to maintain detailed records of their SKT-2 practice, to be updated weekly for 8 weeks. They were informed about daily home visits by village health volunteers to measure and record blood pressure levels.

1) Demographic variables questionnaire collected information about age, gender, educational level, income and occupation.

2) Self-report of SKT-2 practice questionnaire was used to collect data on patients' self-reported practice of SKT-2 during the intervention. The patients were required to indicate their level of practice on a **visual analog scale (VAS**), modeled after a medication adherence scale developed by Walsh and colleagues (2002). Patients were asked to grade their frequency of practice along a scale from 0 to 100%, 0% indicating no practice and 100% meaning practice 100 of the prescribed times, or every day. Two separate VAS where used to assess practice frequency (doses) and regularity of practice. A higher score indicated better compliance with the recommended treatment. A cut point of 80% was used to classify good or poor frequency of practice.

3) Knowledge of SKT-technique

The researcher developed a questionnaire to measure the participants' level of knowledge about the SKT-technique. The questionnaire was based literature reviews by Kantharadussadee (2009). It was composed of 33 items, with 3 possible responses; "yes", "no" or "don't know". The responses where scored and the scores where converted to a scale from 0 to 33. A higher score indicated a higher degree of knowledge about SKT techniques.

Knowledge of SKT-technique	Number of item	Possible score
Knowledge of SKT-technique	33	0-33
Overall	33	0-33

The questionnaire content was validated by 3 experts hypertension and alternative medicine clinicians. Subsequently, it was piloted among 13 hypertensive persons at the Out Patient Department, Sumutsakorn hospital or primary care unit. The overall coefficient alpha was .8957, indicating its reliability as an instrument for this study.

4) Attitude of SKT-technique

A similar 37-point questionnaire was developed to assess participants' attitude towards the SKT-technique, based on literature reviews by Kantharadussadee (2009). This questionnaire was scored in a similar way to the knowledge questionnaire, on a scale of 0 to 37, thirty-seven indicating a more positive attitude towards SKT-2.

Attitude of SKT-technique	Number of item	Possible score
Attitude of SKT-technique	37	0-37
Overall	37	0-37

The questionnaire content was validated by 3 experts hypertension and alternative medicine clinicians. Subsequently, it was piloted among 13 hypertensive persons at the Out Patient Department, Sumutsakorn hospital or primary care unit. The overall coefficient alpha of this questionnaire as .956 was indicated adequate reliability for this instrument.

5) Record of SKT technique. Two separate questionnaires where used to track recorded blood pressure levels during the intervention and a patient self-reported assessment of SKT performance.

a. The village health volunteers maintained a record of blood pressure measurements from the patients, obtained before and after practicing SKT-2. The workers were instructed to ensure uniformity of records as much as possible by using the same sphygmomanometer, at the same time of day, with the patent in the same position throughout the eight weeks of the intervention.

b. The hypertensive patients in the trial were asked to maintain a self-assessment of SKT-2 performance in the form of a visual analog scale (VAS).The VAS was on a scale of 0 to 100 percent, with a higher score indicating more regular practice. A cut point of 80% was used to classify good or poor practice.

Qualitative data

The researcher conducted semi-structured focus group discussions with selected health care workers and in-depth interviews with participating hypertensive patients, to illicit participants views. Participatory observation data was integrated and included in the qualitative data analysis. The researcher facilitated the sessions to clarify the objectives and goals, recruit participants, create the semi-structured questionnaires and manage timing of the exercises. All participants completed written informed consent prior to participating in the focus group and in-depth interviews. Both events were held take at Kae rai DHPH. The focused group discussion lasted 60-90 minutes, while the in-depth discussions lasted 45-60 minutes. The researcher used audio device recorder sand field note taking with participants' permission.

1) In-depth interview was conducted using a semi-unstructured format with the hypertensive patients enrolled in the study. The purpose of interview was to discover factors related to barriers and facilitators of using SKT technique and how these may interact in informing health beliefs and practices related to blood pressure control among people having hypertension.

2) Focus group discussion group using semi-unstructured interview guidelines. The participants were asked about creation and preparation of the proactive

practice team and guidelines combine with the results of exploring barriers and facilitators of using SKT-2 to control blood pressure.

3.5 Data Analysis

Qualitative data analysis

Once the qualitative data was collected from the in-depth interviews, focus group discussions and participatory observation, content analysis was performed to categorize responses by defined themes. Content analysis of qualitative data is a systematic and replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding (Stemler, 2001). It is a useful technique to discover and describe the focus of individual, group, institutional, or societal attention (Bergh, Jakobsson, Sjostrom & Steen, 2005).

The process of content analysis, in this study, was presented as follows,

1. All tape recording of interview and focus group discussion were transcribed verbatim. All field notes were written down and transcribed verbatim. The researcher read all the transcripts to understand and conceptualize the data.

2. The researcher coded the data word by word to extract the references. All unnecessary text was discarded, preserving the essential statements.

3. The researcher coded the data line by line to indentify the closest approaches to describing words. The data with the same code would be categorized in the same group.

4. The researcher formulated themes, defining the approaches and refining the process and comparison of the themes.

Quantitative data analysis

Data was analyzed using the following statistical criteria.

1. Qualitative data about demographics, knowledge of SKT technique, attitude about SKT-2 technique, and blood pressure level were reported statistically as the mean, frequency distribution and an appropriate statistics of central tendency and variability. The researcher identified the following potentially confounding factors consisting of demographic data, duration of disease, knowledge of SKT technique, and attitude about SKT-2 technique. The researcher collected all variables considered or known to affect the outcome(s) of interest to control these confounders for further interpretation in discussion section.

2. Inferential statistics: Paired T-test and non-parametric Wilcoxon single test were performed to compare knowledge of and attitudes about SKT-2 technique. Repeated measures were obtained the beginning of the intervention (baseline); at 4 weeks and at the end of the intervention period (8 weeks). The means blood pressure was compared to the baseline value to determine the degree and direction of change.

3.6 Intervention

The process of creation and implementation of the study intervention to control blood pressure in the community was divided into three phases, preparation, implementation and monitoring/evaluation. The output of the study was the development of a community model for blood pressure control with SKT-2 technique.

3.6.1 Phase 1: Preparation: The preparation phase involved two steps, clarification of the hypertension problem in the community and engagement of the local staff for the study.

Step 1 Exploring the nature of hypertensive disease and the effectiveness of the existing blood pressure control program at the Kae rai DHPH.

The researcher interviewed the directors the of Kratum ban Health District Office and the Kae rai DHPH, to review the state of blood pressure control measures and the effectiveness of the of existing interventions. The researcher reviewed statistical data on local hypertension prevalence, and the prevalence rate of hypertension-related morbidity, from the Ministry of Public Health database. The major concerns identified in this process were;

1) The increasing incidence rates for hypertension, in Kratum ban district. The database showed almost 200 percent increased prevalence of hypertension form 2008 to 2010,

2) The directors of the health centers confirmed that the existing interventions to control blood pressure in the community lacked a clear and practical methodology for implementation in the community setting. Furthermore the existing intervention lacked an effective monitoring mechanism. The center directors reported that the existing intervention was not properly suited or relevant to the local population, making it less effective. They expressed a need for a relevant intervention, that was affordable and widely applicable.

3) Local healthcare providers had received training in SKT-2 technique for blood pressure control. However there was no mechanism for them to educate members of the public who could benefit from the intervention. The researcher and the center directors where interested to determine barriers and facilitators for practicing SKT-2 technique in their community.

Step 2 Orientation and engagement the hospital administration and staff were necessary to encourage local support and sustainability of the study intervention.

A critical component of the preparation phase was engaging the director and staff of the Kae rai DHPH to ensure their active support and cooperation through the study. The researcher accomplished this by several meetings with the staff and director to explain and clarify the objectives of the study, the expected outcome and benefit of the study, the procedure of the study and a clear delineation of the roles of the hospital staff in the proposed study. The support and cooperation of the director

was particularly important to facilitate progress of the intervention and to assist with resource allocation for the study. In this way the researcher was able to assure that local stakeholders had an investment in the positive outcome to benefit blood pressure control efforts in the community.

3.6.2. Phase II Implementation

Step 1 Proactive practice team building. *A proactive practice team* was composed of critical community based health care workers and was created in consultation with the hospital director. The team consisted of nurses; health care providers and village health volunteers involved in the care oh patients from the hypertensive clinic. The teams member roles and responsibilities were clearly defined to ensure prompt and effective problem solving and delegation of duties.

The selection of the village healthcare volunteers was done in consultation with the clinic nurses and other healthcare staff. The volunteers were selected after mapping their geographic proximity to hypertensive patients in the community. They were instructed in the techniques and mechanism of action of SKT-2 to ensure their readiness to teach hypertensive patients in the study. The ration of volunteers to patients was 3:1, with a total of 8 volunteers enrolled for the study.

Hypertensive persons who received treatment at the hypertension clinics of Kae rai district health promotion hospital, Samutsakorn province, were invited to participate in this study. Purposive selection of 24 patients was achieved and they were enrolled after meeting the inclusion criteria and providing informed consent for participation in the study

Step 2 Capacity building of proactive practical team:

a) Health care providers group: In order to provide sufficient knowledge and skill on improvement of blood pressure controlled in community by using SKT-2 technique, a comprehensive training program was instituted, which consist of; training in SKT-2 technique, education on the concepts of SKT-2 technique (knowledge and mechanism of SKT-2 technique to control blood pressure), and training in teaching and monitoring of SKT-2 technique among hypertensive persons.

b) Role of researcher: the researcher played a supportive role to provide knowledge, facilitate the practice, provide tools for implementation and instruct and coordinate monitoring of the intervention.

Step 3 Exploring SKT-2 technique and proactive team. After the study participants had received training for a month in the procedure and mechanism of SKT-2, the intervention was instituted as part of the community effort to control hypertension in Kae rai DHPH. This involved observation, in-depth interviews and focused group discussions to explore the barriers and facilitators of usingSKT-2 technique to control blood pressure.

The result of this step was the clear definition of key words and theme of barriers and facilitators of usingSKT-2 of each group, from content analysis of the collected data. Additionally, the data from the focused group were applied to define the characteristics of proactive practical team and as a basis for the development of the intervention guidelines for improving self-monitoring to control blood pressure for hypertensive patients.

The role of researcher in this step as facilitator to set group meeting in terms of preparing knowledge about proactive practical team characteristic; benefit of team building to support of group meeting.

Step 4 Developed guideline of practice and monitoring of SKT-2 technique.

The result of step 1 and 2 were being baseline of this step to develop guideline of practice and monitoring of SKT-2 technique as follows:

a) Group of health care providers created suitable time and appointment time to follow-up the hypertensive persons' practiced; guideline of their work to control blood pressure consist of:

i) Handbook of practice SKT-2 technique that consist of principle of practice; postural practice; breathing method; reasonable of practice and guideline of answering the frequency question about practice the technique.

ii) Guideline of home visit every week(for two-month) that consist of checklist of the corrected of postural practice; breathing method; number of counting breathe and recorded blood pressure before and after practice.

Step 5 Training and Practice of SKT-2 technique for hypertensive patients in the community: The cohort of enrolled hypertensive patients received comprehensive instruction including; training in SKT-2 technique and education on the concepts of SKT-2 technique (knowledge and mechanism of action of SKT-2 technique to control blood pressure). The hypertensive patients were trained by the village health volunteers, using the instructor model from the study protocol. The hypertensive patients were encouraged to set suitable and realistic times of practice based on their lifestyle needs and availability. They coordinated with the village health care volunteers to arrange convenient appointment time for follow-up, to receive additional coaching and training material such as pamphlets and audio-visual supportive material of SKT technique.

3.6.3 Phase 3 Monitoring and Evaluation

The study was conduct to make sure that hypertensive persons can control their blood pressure by using SKT-2 technique with support from nurse and health care provider. The outcomes were monitored and evaluated by following measured blood pressure levels from hypertensive patients, participants knowledge about SKT-2 technique by using quantitative method and experimental quasi (pre-posttest in two months).

Monitoring

a) Group of hypertensive persons were monitored for their practice of SKT-2 Technique by the proactive practical team as followed:

i) Home visited to observe and record blood pressure before and after practice SKT-2 every week for two-month.

ii) Observation and recording their method and technique of practice SKT-2 technique every week for two-month.

b) Group of health care providers were self- monitored their practice SKT-2 technique as followed:

i) Recorded their method and technique of practice SKT-2 technique monthly for two months.

ii) Recorded their blood pressure every week for two-month.

Evaluation

a) Group of hypertensive persons were evaluated the result of their practice SKT-2 technique by:

i) Using quantitative method: experimental quasi (pre-posttest in two months) to compare blood pressure level, knowledge and attitude of SKT-2 technique. The blood pressure levels were compared to baseline values before practice; the second time (one-month after) and the third time (two-month after). The knowledge and attitude of SKT-2 technique were compared at the first time before practice; the second time (two-month after).

ii) Monthly group meeting at Kae rai district health promotion hospital to reflex the result of practice and obstacles during practice with hypertensive group and proactive practical team who support them practicing. In order to exchange and share experience of practice and discussed to find out suitable problem solving method.

iii) Evaluated the process of program during practice by using questionnaire to evaluate the program at time one-month after practice. The evaluation consist of content of SKT-2 technique; process of teaching and monitoring of instructor model and media of teaching.

b) Group of health care providers were evaluated the result of their practice SKT- technique and result of their teaching and monitoring among group of hypertensive persons as followed:

Result of their practice

i) Using quantitative method: experimental quasi (pre-posttest in two months) to compare blood pressure level, knowledge and attitude of SKT-2 technique. The blood pressure levels were compared at the first time before practice; the second time (one-month after) and the third time (two-month after). The knowledge and attitude of SKT-2 technique were compared at the first time before practice; the second time (two-month after).

ii) Monthly group meeting at Kae rai district health promotion hospital to reflex the result of practice and obstacles during practice with their proactive practical team. In order to exchange and share experience of practice and discussed to find out suitable problem solving method.

iii) Evaluated the process of program during practice by using questionnaire to evaluate the program at time one-month after practice. The evaluation consist of content of SKT-2 technique; process of teaching and monitoring of instructor model (self ratting score) and media of teaching.

Result of their teaching and monitoring among group of hypertensive persons

The health care providers observed and participated in monthly group meeting at Kae rai district health promotion hospital to reflex the result of practice and obstacles during practice proactive practical team. In order to support the hypertensive persons to exchange and share experience of practice and discussed to find out suitable problem solving method.

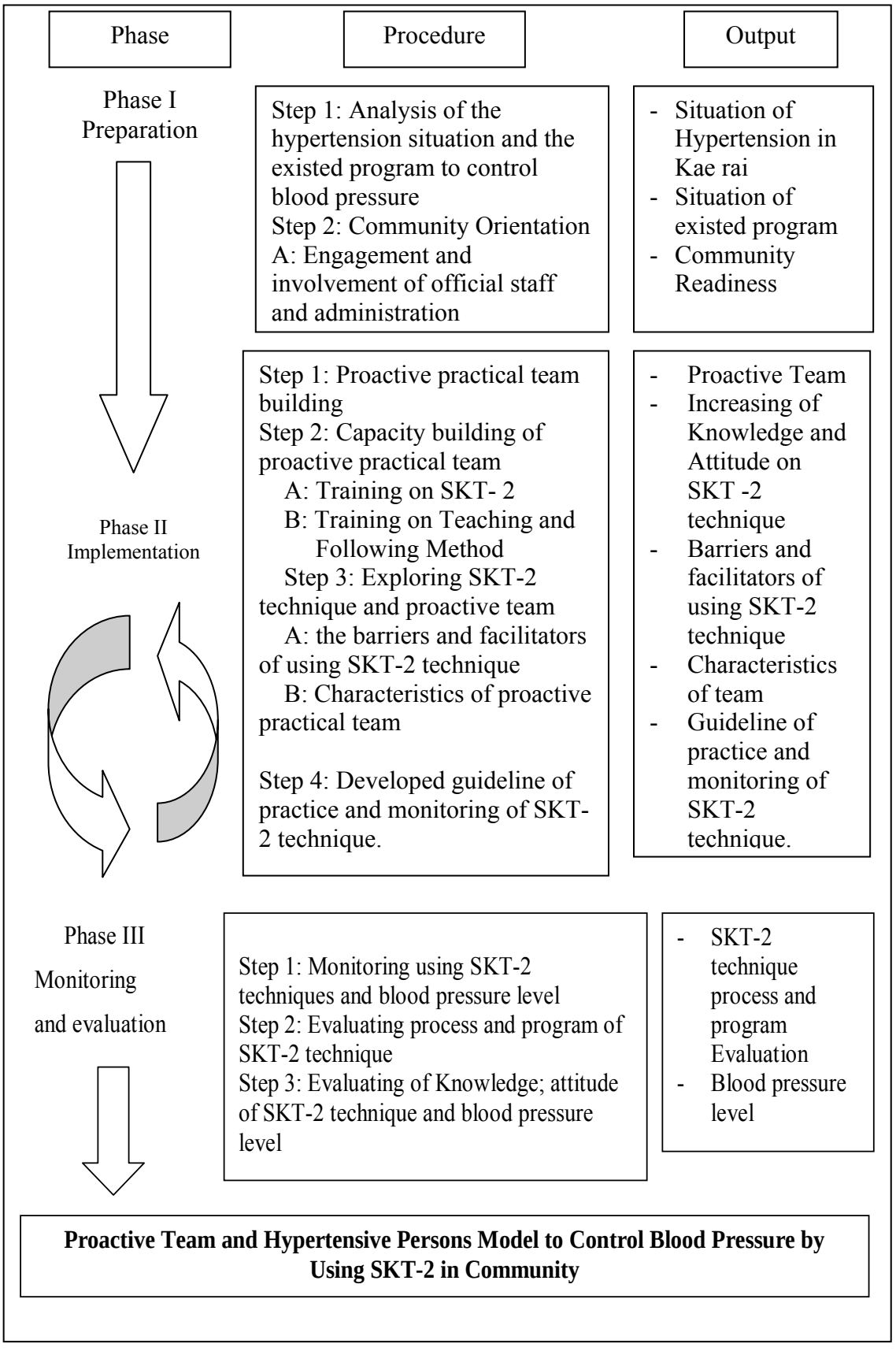
3.7 Protection of human subjects

Prior to data collection, permission for collecting data was obtained from the Institutional Review Board of Public Health Faculty, Mahidol University to the director of District health office. From this agreement, the director of District health office and head of primary care unit facilitate data collection as needed. Next, the researcher gave informed consent form to the subjects explaining that their participation or not participation not any effect on them received service. Information that concerned all private subjects was treated as confidential.

3.8 Limitation of SKT techniques

In case of persons who have condition of hemorrhage or woman who have hyper menstruation.

3.8.1 Process of the study



CHATER IV
RESULTS

The present study is a mixed-method study aimed to 1. explore the barriers and facilitators factors of using SKT-2 technique to control blood pressure in community, 2. develop appropriate interventions for improving blood pressure control,and 3. identify characteristics and responsibilities of the proactive healthcare teamin community at Kaerai District Health Promotion Hospital.

Both qualitative and quantitative methods are utilized for developing of proactive practical team and hypertensive persons model to control blood pressure by using SKT-2 in community. The results of this study were presented in four parts as follows:

Part I: Preparation

1. Situation Analysis
2. Background characteristics of the participants
3. Community readiness

Part II: Implementation: Process of the Model Development

1. Proactive practical team building
2. Capacity building of proactive practical team
3. Exploring SKT-2 technique and proactive team
    - 3.1 The barriers and facilitators of using SKT-2 technique
    - 3.2 Characteristics of proactive practical team
4. Developed guideline of practice and monitoring of SKT-2 technique.
5. Training and Practice SKT-2

Part III: monitoring and evaluation

1. Monitoring using SKT-2 techniques and blood pressure level
2. Evaluating process and program of SKT-2 technique
3. Evaluating of Knowledge; attitude of SKT-2 technique and blood pressure level

Part IV: Proactive practical team and Model to control blood pressure by using SKT-2 in community

Part I : Preparation

1. Situation Analysis

Twenty - four hypertensive persons received treatment at the hypertension clinics of Kaerai district health promotion hospital, Samutsakorn province in Thailand.All of those persons were invited to participate in this study if they met the inclusion criteria. All of nurses and public health officers (two-nurse; two- public health officers) were invited to participate in this study.Nurses and health care providers selected the village health volunteers included to be the instructor model, which would be received training of SKT-2 technique and had to teach hypertensive persons to practice SKT-2 technique, by suing ratio of hypertensive persons per village health volunteers as 3:1; with selected from mapping area (village health volunteers were lived near to patient home) that village health volunteers response to take care their hypertensive persons. Thus, number of village health volunteers in this study as 8 persons.The both of participants group met the inclusion criteria of the study.

The researcher analyzed the situation of hypertension and the existing program to control blood pressure in order to interview and meeting with the director of Kratum ban health district office and director of Kaerai district health promotion hospital.

Then, the researcher combined the data with secondary data about the statistical of prevalence rate and morbidity rate of hypertension from data base of ministry of public health to identify the gaps. The main gaps that found were;

1) Increasing number of hypertensive persons in Kratum ban district from 2008 to 2010 as 1,263; 1,578 and 2,393 cases.

2) The director of Kratum ban health district office and director of Kaerai district health promotion hospital suggested that the existing hypertension controlled program*lack a clear practical methodology and tools* of practicing and monitoring. Moreover, the blood pressure control program might not be relevant to their hypertensive target group. Thus, they needed for a new approach, which could be applied to their target group, is low cost; sustainable and is widely accessible.

3) The health care providers in Kratum ban district had received training the SKT technique but *still had not transmitted the SKT technique to hypertensive hypertensive persons in community. Thus, the directors of both health care offices need to know the barriers and facilitators of practice SKT technique in their community.*

2. Background characteristics

a) Demographic characteristics of hypertensive persons

Thirty hypertensive persons were invited to participate in this study. However, only 24 persons agreed to participate. As seen in Table 2, most of the subjects were women (62.5%). Their ages ranged from 35 to 77 years old with a mean of 64.0 years old (S.D.= 9.5). The majority of them had finished primary school (70.8%), and earned 5,566 Bahts a month, the income ranged from 500 to 20,000 Baht. Occupation, most of the participants had worked a daily paid job (33.3%), a work at home job which is ordering from the factories in neighborhood area. The participants reported having adequate income but not enough to save (62.5%), having adequate income with saving (20.8%), and inadequate income but no debts (16.7%).

Table 4.1 Demographic Data the Hypertensive persons (n = 24)

Demographic Characteristics	Number	%
Gender		
Male	9	37.5
Female	15	62.5
Age (years) mean = 64.0, S.D = 9.5	min = 35	max = 77
Education		
Illiterate	3	12.5
Elementary	17	70.8
Junior high school	1	4.2
High school	2	8.3
University	1	4.2
Occupation		
Gardener	1	4.2
Having own business	7	29.2
Daily paid job	8	33.3
Housework	4	16.7
No job	2	8.3
Received monthly money from their family	2	8.3
Perceived income adequately		
Having adequate income but not enough to save	15	62.5%
Having adequate income with saving	5	20.8%
Inadequate income but, no debts	4	16.7%

As shown in the following Table, the participants reported that they had been diagnosed with hypertension with the mean of 5 years (S.D. = 5.5). Average income per month was 5,566 Baht per month. The average of systolic blood pressure at the beginning of the research was 147.2 mmHg ranging from 116 to 172 mmHg, diastolic blood pressure for 84.3 mmHg ranging from 66.0 to 95.0 mmHg. The pulse rate measured at the beginning of the research was 80.8 beats per minute. For the other health-related profiles,

the results of the anthropometric data found that average of weight, height, and BMI were 69.1 kilograms, 159.8 centimeters, and 27.2 kg/m^2, respectively.

Table 4.2 Demographic Data of the Hypertensive persons (n = 24)

Variable	Mean	S.D.	Minimum	Maximum
Duration of disease (year)	5.0	5.5	0.5	25.0
Income per month (bath)	5566	5902	500	20000
Systolic blood pressure at the beginning of research (mm Hg)	147.2	13.2	116.0	172.0
Diastolic blood pressure at the beginning of research (mm Hg)	84.3	6.9	66.0	95.0
Pulse (beats/minute), at the beginning of research	80.8	8.7	60.0	96.0
Health related profile				
Weight (kg)	69.1	12.3	45.0	87.5
Height (cm)	159.8	0.8	145.0	175.0
BMI (kg/m^2)	27.2	5.0	16.5	37.4

About 45.8% were first diagnosed with hypertension and started treatment at the Kaerai District Health Promotion Hospital. For treatment of hypertension, subjects had been received treatment of hypertension continuously at hospital or primary care units (87.5%), on the other hand 12.5% of them reported that no longer continued treatment. The participants were asked about their current treatment methods for the hypertension, most of them visit the doctor regularly (82.4), treated at private clinics or hospital (10.3%), a few of them also bought medication at the pharmacy (3.4%), and none of them used alternative therapy.

Approximately, forty six of the participants reported after diagnosed with hypertension, they only received treatment at the Kaerai District Health Promotion Hospital (45.8%).

All of the subjects could go to see the doctor for appointment independently without helping of other persons. Eighty-three percents of the subjects reported the caregiver could go with them for a doctor appointment when needed. Data of other health problems showed that participants had only hypertension (66.7%) while 33.3% of the subjects had other illnesses. Most of the subjects revealed that their doctors did not perceived that they had other health problems (79.2%) as shown in Table 4.3.

Table 4.3 Demographic Data of the Participations (n = 24)

Demographic Characteristics	Number	%
Continuation of treatment		
No	3	12.5
Yes	21	87.5
Place of getting treatment		
Used to go at other health care units, but now getting treatment at the Kaerai Hospital	13	54.2
Never visit other health care units, only at the Kaerai Hospital	11	45.8%
Ability to go for appointment		
I can go by myself	24	100
Family members could take you for appointment when needed		
Yes	20	83.3
No	4	16.7
Having other disease		
Yes	8	33.3
No	16	66.7
Physician's perception of your other health diseases		
Yes	5	20.8
No	19	79.2

Descriptive statistics of the Health care providers

As shown in the following Table2, most of the participating health care providers were female (91.7%), about the education level, 41.7% of them finished the elementary school, 16.7% finished high school level, and 41.7% of them graduated in bachelor's degree. The average age of the health care providers was 45.7 years (S.D. = 8.4). Occupation data, there were public health officers (16.7%), academic staff (16.7%), and village health volunteer (66.7%). Perception of income adequacy, they reported that having adequate income with saving money (33.3%), adequate income without saving money (41.7%), not adequate and no debts (16.7%), and not adequate and having debts (8.3%), respectively.

The health care providers reported that they had been providing care for the hypertensive persons for 10.5 years, mean of having job experience approximately for 12 years. Average income per month was 13000 Baht per month. The average of systolic blood pressure at the beginning of the research was 117.7 mmHg ranging from 103 to 134 mmHg, diastolic blood pressure for 75.4 mmHg ranging from 54.0 to 94.0 mmHg. For the other health-related profiles, the results of the anthropometric data found that average of weight, height, and BMI were 60.0 kilograms, 157.7 centimeters, respectively.

Table 4.4 Demographic Characteristics of health care providers (n=12)

Demographic Characteristics	Number	%
Sex		
Female	11	91.7
Male	1	8.3
Education		
Elementary	5	41.7
High school	2	16.7
University	5	41.7
Occupation		
Public health officers	2	16.7
Academic staff	2	16.7
Village health volunteer	8	66.7
Perception of income adequacy		
Adequate income with saving money	4	33.3
Adequate income without saving money	5	41.7
Not adequate, no debts	2	16.7
Not adequate, having debts	1	8.3

Table 4.5 Demographic Data of the health care providers (n = 12)

Variable	Mean	S.D.	Minimum	Maximum
Age (year)	45.7	8.4	33.0	62.0
Duration of providing hypertensive care(year)	10.5	11.4	0.5	33.0
Job experience (year)	12.0	11.9	0.5	33.0
Income per month (bath)	13000	11591	3000	40000
Systolic blood pressure at the beginning of research (mm Hg)	117.7	10.7	103.0	134.0
Diastolic blood pressure at the beginning of research (mm Hg)	75.4	13.3	54.0	94.0
Health related profile				
Weight (kg)	60.0	10.4	46.7	79.0
Height (cm)	157.7	5.6	151.0	170.0

The health care providers (n=12) were asked about encouragement method, teaching method, and problems during SKT practices. The results showed that the health care providers reminded hypertensive persons to practice SKT(66.7%), teach or advice about medicine (66.7%), advice about food practices (75.0%), advice about exercise (91.7%), teaching SKT (50.0%).They reported the teaching methods used including demonstration (83.3%), lecture (8.3%), lecture plus SKT practice activity (8.3%), group discussion (41.7%). The material used including pamphlets, and pamphlets and poster (25.0%). More than half of health care providers stated having problems during SKT practices (58.3%), the reasons found including; could not complete duration of SKT, not continued practicing, not confident for teaching, not confident the correction of practice, no time, did other exercises, and muscle pain.

Table 4.6 Barriers to SKT2 Practice by Health care providers (n=12)

Variables	Number	%
Encouragement method :		
Remind to see the doctor		
- yes	8	66.7
- no	4	33.3
Teach, advice for medicine		
- yes	8	66.7
- no	4	33.3
Advice about dietary practice		
- yes	9	75.0
- no	3	25.0
Advice about physical exercise		
- yes	11	91.7
- no	1	8.3
Teaching SKT		
- yes	6	50.0
- no	6	50.0

Table 4.7 Characteristics of health care providers

Variables	Number	%
Teaching methods :		
Previously used other teaching methods		
- yes	7	58.3
- no	5	41.7
Methods used for SKT teaching		
- demonstration	10	83.3
- lecture	1	8.3
- lecture plus SKT practices	1	8.3
- group discussion	5	41.7
Material used		
- pamphlets	7	58.3
- pamphlets and poster	3	25.0
Having problems found from SKT practices	7	58.3
- could not complete duration of SKT	1	8.3
- not continued	1	8.3
- not confident to teach	1	8.3
- not confident the correction of practice	1	8.3
- no time	1	8.3
- did other exercises	1	8.3
- muscle pain	1	8.3

3. Community readiness

The researcher had multiple meetings with the director and staff of Kaerai district health promotion hospital, regarding the research process and for briefing them on the objectives, process and usefulness of this study, whileobtaining a better understanding of the respective roles. The director was involved in this study in order to allocate resources, decrease obstacles and support the process to building the proactive team.

The result of community readiness was identified as

- The director and staff of Kaerai understood the process and the objectives and useful of the study.

- Creating and preparing the team with the assistance of the director and staff who elected the four health care providers as the principle team members and who where responsible for selecting the eight members of the proactive team

- The director and staff of Kaerai allocated resource and delegatedwork for each part of team and community.

- The director and staff of Kaerai informed the district health office and provincial health office about the study process and provided permission to follow up and participate in the study.

- The director and staff of Kaerai advertised the study to the community by informing and encouraging the hypertensive persons; family; and local officer to know and participate in the study.

Part II : Implementation: Process of the Model Development

This part consist of four steps;

1. Proactive practical team building
2. Capacity building of proactive practical team
3. Exploring SKT-2 technique and proactive team
    - 3.1 The barriers and facilitators of using SKT-2 technique
    - 3.2 Characteristics of proactive practical team
4. Developed guideline of practice and monitoring of SKT-2 technique.

Step1. Proactive practical team building

The proactive practical team was the key component of themodel to control blood pressure.The team consisted of 4 health care providers and 8 village health volunteers who participated and coordinated to support hypertensive patients in

controlling their blood pressure through proactive follow-up, setting agreed-on goals, and developing a written action plan.

Step 2. Capacity building of proactive practical team

In order to provide sufficient knowledge and skill on improvement of blood pressure controlled in community by using SKT-2 technique, a comprehensive program was implemented consisting of:

1. Training in SKT-2 technique. The proactive practical team received training SKT-2 technique practice from the researcher. The training consisted of lectures, demonstrations and group discussions. The researcher first lectured about the topic using power point presentations, posters, audio CD material and pamphlets. The technique was then demonstrated to the team members who then demonstrated thire ability by re-demonstrating the technique for the researcher. Thelast step was *group discussion* among the proactive practical team members to describe their experiencesand reflect on their feelings when practicing.They discussed about correct of practices such as correct posture,correct breathing methods, and the appropriate method of counting 30 beats during the practice. The entire training process lasted two days. (The detail of the program was showed in appendix).

SKT 2 Technique. The procedure taught to the proactive team is as follow,

1. The practitioner is instructed to stand firmly and comfortably with the feet shoulder width apart.

2. The arms are raised straight above the head so that they are against each ear and the palms are pressed together above the head. This stretching action causes the carotid sinuses to be activated through the mechanism of the baroreceptors and CN9 and CN10 that subsequently control the blood pressure level.

3. The practitioner then gently closes her eyes and with the tip of the tongue on against the palate, takes a deep, full inhalation breath through the nose.

5. The breath is held for 3 to 4 counts then slowly released with a gentle exhalation through the mouth.

6. The practitioner should remain peaceful and mindful of the breathing and the posture throughout the exercise.

7. This is repeated 30 times.

8. The practitioner should consistency practice every day at least 2 round with 30 times in each round of practice. The effective result of SKT-2 Technique to control blood pressure among hypertensive persons should continue and consistency practice at least two months.

2. Training on concept of SKT-2 technique (knowledge and mechanism of SKT-2 technique to control blood pressure), The proactive practical team received training from the researcher with the PowerPoint and toolkit of SKT-2 technique about knowledge and mechanism of the technique. The toolkit of SKT-2 technique was applied from book of SKT technique that name was "Meditation practice for holistic self healing; the 6th edition; 2007" Kantharadussadee (2007).

The toolkit of SKT-2 technique was allowed from the author to apply the technique into easy word and described the mechanism of the technique by using the answer of the frequency question of SKT-2 technique such as:

"Why the practitioner should practice 30 times?"

"Why the practitioner should slowly breath and slowly count number of the breathe?"

3. *Training on teaching and following method of SKT-2 technique* among hypertensive persons who were trained the technique. After the proactive team received sufficient training in the SKT-2 practice, they received training on methods of teaching and follow-up of SKT-2 technique. The methods was used in this step consisted of lectures and demonstrations.

The training utilized knowledge packages which provided information on:

- Who is the student?
- What is the topic?
- How to teach?
    - -Method of teaching
    - -Media of teaching

The follow-up procedure training consisted of:

- *Appointment making techniques;* Weekly and monthly appointment were required. The weekly appointment was used for home visits tofollowed up the practice of SKT-2 technique with measured blood pressure checking before and after. The monthly appointment was used for group meeting and discussion by hypertensive group to reflect the experiences, solved problems with the practice and reporte the blood pressure level of hypertensive persons.

- *Blood pressure measured technique*

- *Checklist of SKT-2 techniquepractice* consist of 4-item as *1).*ensure that practitioner arms are raised sufficiently high above the head to cover the ears; *2). check*that palms are pressed together above the head*; 3).* Check the rhythm of the breath counting and *4).*check the completion of 30 cycles of practice. The detail of this tool was showed in appendix. The proactive team received training of the method to record of practice technique.

Step 3. Exploring SKT-2 technique and proactive team

This step explored two aspects, 1. ***the barriers and facilitators***of using SKT-2 technique; and ***2.the characteristics of the proactive practical team***. The qualitative results of these step came from in-depth interviews and focus group meetings as following:

3.1) In-depth interviews with hypertensive persons and health care providersto explore the **barriers and facilitators** of usingSKT-2 technique to control blood pressure. Hypertensive patients where first visited at home by village health volunteers for interviews and to observe their performance of the technique. The village volunteers performed a total of 24 home visits over two weeks. Subsequently the four health care providers and eight-village health volunteers were also interviewed over the course of one week. The results of these visits and interviews are reported as follows.

In-depth interview of hypertensive persons and health care providers. These interview aimed at discovering factors related to barriers and facilitators of using SKT technique to improve blood pressure control among people having hypertension. The interviews seeks to understand the context of hypertension in the community, including their understanding of the disease process and to assess the level of compliance. The interviewers used follow-up questions in order to probe, deepen, and clarify the meanings of participants' responses.

Table 4.8 Record of result after using SKT-2 techniqueamong hypertensive persons

Record of result after using SKT-2 techniqueamong hypertensive persons								
No.	Sex	(BP)	BP Mar		BP Apr		BP Jun	
1.	F	reduced	149	81	148	80	140	70
2	F	reduced	140	90	130	80	120	82
3.	F	reduced	168	88	134	74	130	70
4.	F	reduced	140	80	121	74	119	70
5.	M	don't practice	141	88	149	80	145	80
6.	F	reduced	149	81	108	60	100	65
7.	F	reduced	116	66	189	90	48	80
8.	F	don't practice	170	90	160	90	161	88
9.	F	reduced	172	79	145	83	130	78
10.	F	reduced	142	80	120	73	114	72
11.	F	don't practice	140	90	130	90	120	70
12.	M	reduced	157	79	130	74	128	74
13.	F	reduced	140	90	129	86	110	70
14.	F	don't practice	140	90	147	88	164	76
15.	M	reduced	160	90	150	80	145	80
16.	M	reduced	134	71	130	78	123	74
17.	F	don't practice	158	90	160	90	150	89
18.	F	reduced	138	84	131	84	134	84
19.	M	don't practice	164	95	165	99	158	90
20.	F	reduced	140	80	121	72	116	60
21.	M	reduced	157	89	135	80	118	70
22.	M	reduced	149	76	130	80	110	70
23.	M	reduced	137	84	128	75	110	70
24	M	reduced	140	84	130	80	120	80

Twenty-four hypertensive persons participated to in-depth interviews; there were 15 females and 9 males. Seventeen(17)persons were able to reduce their blood pressure level after practice SKT-2 in three months but the rest, (7 persons)maintained elevated blood pressure levels. Most of participants (18 persons) reported that they practiced SKT-2 technique but 6 persons reported not practicing the technique.

Table 4.9 Reported barriers SKT-2 practice among hypertensive persons

No.	**Themes of reported barriers to SKT-2 practice**					
	Limit of time	Related/ obligation	Have aches and pain/complicated technique	Do another method	Take no notice	Time/day
1	Have limited of time	Have business all day; customer come to me every hour	Arms pained; can do as 20 times			morning
2	Busy; except morning		At first have arms pained; after practice 3-4 days it was gone			morning
3	limited of time	When practicing I was concern about my customers	At first month have pain and aches my arms; shoulders; neck .after 1 month of practice it was gone. I do only 30times with rest 1-2 times.			morning
4	Have not any obstacle					Morning-evening 30times
5	limited of time		have pain and aches my arms; shoulders; neck; back and abdominal/ complicated technique/tried breathe		continue to take medicine; to visit M.D.	don't practice
6		Many things to do	have pain and aches my arms /dizzy/nausea		Don't know about complicated of HT/don't fear to be high BP	1st m. morning; 2nd m. Morning-evening

Table 4.9 Reported barriers SKT-2 practice among hypertensive persons (cont.)

No.	**Themes of reported barriers to SKT-2 practice**					
	Limit of time	Related/ obligation	Have aches and pain/complicated technique	Do another method	Take no notice	Time/day
7		Busy/ Many things to do		continue to take medicine	continue to take medicine; to visit M.D,I feel good ; am OK / Don't know about complicated of HT	don't practice; BP still high , obesity
8		Many things to do	have pain and aches my arms; shoulders; I can do 2 times then I quit.		I continue treatment/ Don't know about complicated of HT	don't practice; BP still high ,obesity
9		Busy to take care my grand son				Only morning
10				quickly walk with move arms		Morning-bf. bed time 30 times (rapid rhythm of breathe)
11			pain and aches my arms; shoulders;	Ride bicycle		1st m. do 1t./wk; 2nd m. 1t./day bf. bedtime, I'm lazy, feel sleepy when doing, after that my BP reduced.

Table 4.9 Reported barriers SKT-2 practice among hypertensive persons (cont.)

No.	**Themes of reported barriers to SKT-2 practice**					
	Limit of time	Related/ obligation	Have aches and pain/complicated technique	Do another method	Take no notice	Time/day
12	Have not any obstacle					Morning-evening 30times
13		busy	dizzy / pain and aches my arms; shoulders;		don't fear to be high BP	evening 20times
14	limited of time	Have work with limited time/many things to do.			don't fear harmful from high BP	don't practice; BP still high , obesity
15		When practicing I was concern about my work	pain and aches my arms; shoulders;	Lift weight		evening 15times
16	Have not any obstacle					Morning-evening 30times
17		Busy to take care my grand children	pain and aches shoulders; anxiety about my business			don't practice; BP still high , obesity
18	limited of time	Busy to take care my grand children	Uncomfortable breathe			2-3t./wk
19				I'm feel OK that I lift the weight		don't practice

Table 4.9 Reported barriers SKT-2 practice among hypertensive persons (cont.)

No.	**Themes of reported barriers to SKT-2 practice**					
	Limit of time	Related/ obligation	Have aches and pain/complicated technique	Do another method	Take no notice	Time/day
20	limited of time					Only morning 20-30t.
21			Pain and aches shoulders /dizzy/vertigo			morning 20t.
22			pain and aches / complicated technique			morning 10t.
23			I quit when my tibia was broken			evening 20times
24	Have not any obstacle					Morning-evening 30-40 times/round

The obstacle/barriers to SKT-2 practice among hypertensive persons was shown in this table was identified by theme as follow:

1. Have limited time 5 persons for example

Case1: “I have work with limited time and have many things to do”.

Case2: “I am very busy except morning time”.

2. Have related or obligation as 9 persons.

Case1:”I have business all day; customer come to connect me every hour”

Case14:” I have work with limited time and have many things to do.”

Case18.” I am busy to take care my grand children.”

3. Have aches and pain as 12 persons for example

Case8: “I have pain and ache my arms; shoulders; I can do 2 times then I quit”.

Case21: “This technique makes me pain and aches shoulders and feel dizzy and vertigo”.

4. Cannot concentrate with the practice as 3 persons.

Case14.”I have pain and aches shoulders and have anxiety about my business.”

5. Feel dizzy; vertigo and feel nausea as 2 persons.

Case21.” I have pain and ache my arms and have dizzied; vertigo with fells nausea when I do SKT-2.”

6. Do another method such as

6.1 Continue to take medicine as 2 persons.

6.2 Quickly walk with move arms as 1 person.

6.3 Lift weight as 2 persons.

6.4 Ride bicycle as 1 person.

6.5 Aerobic dance exercise and practice yoga as 1 person.

7. Do not concern with high blood pressure as 6 persons.

Case7.”My blood pressure is not high. I continue to takes medicine so I do not fear complication of hypertension. I think hypertension is not serious disease.”

Case14.” I am not fear about any complication of hypertension. I am still have healthy.”

8. Do not practice nor practice less than 2 times per week as 6 persons.

Case17.” I have pain and aches shoulders and have anxiety about my business. I do not practice”

Case19.”I do not practice because I always exercise.”

The following themes where identified as shown in table 6;

1. limits to time
2. prior obligations
3. physical body pain
4. engage in other techniques to lower blood pressure
5. ignoring blood pressure
6. time/day

Table 4.10 Record of result after using SKT-2 technique among health care providers and village health volunteers (n=12)

Record of result after using SKT-2 technique among health care providers and village health volunteers								
No.	sex	(BP)	BP Mar		BP Apr		BP Jun	
1	F	reduced	126	65	135	90	100	72
2	F	Stable BP, don't practice	110	70	100	70	100	74
3	F	reduced	130	90	124	78	120	80
4	F	reduced	110	70	107	70	102	68
5	F	Stable BP, don't practice	118	54	130	65	120	70
6	M	Stable BP	128	90	138	88	130	75
7	F	Stable BP, don't practice	108	82	130	90	142	92
8	F	reduced	103	77	100	74	102	77
9	F	Stable BP, don't practice	134	94	140	90	130	80
10	F	reduced	116	84	105	74	100	70
11	F	Stable BP	104	74	110	70	108	69
12	F	reduced	125	55	118	60	114	67

Twelve persons participated to in-depth interview; there were 11 females and only 1 male. Four of them were health care provider and the rest (8) were village health volunteers. The report was shown that haft of them, 6 persons, reduced their blood pressure level after practice SKT-2 in three- months and 6 maintained stable

blood pressure after practicing SKT2. Eight of participants told that they practice SKT-2 technique but only 4 persons did not practice the technique.

The researcher explored means to encourage and incentivize non-hypertensive individuals to practice SKT2, given that the lack the incentive of hypetnesion symptoms or physiologic signs.

Table 4.11 Barriers of SKT-2 practice among health care providers and village health volunteers (n=12)

No.	Themes of barriers of SKT-2 practice				
	Limit of time	Related/obligation	Have aches and pain/complicated technique	Do another method	Take no notice/ have not BP problem
1		Have business all day, schedule time very busy		Practice meditation	Bf .bed time3t./wk, have not BP problem
2		Too busy/many things waiting for me to do	have pain and aches my arms; shoulders; neck/complicated technique/tried breathe/ cannot concentrate to do		have not BP problem don't practice
3	limited of time	Too busy	have pain and aches my arms; shoulders	SKT3,7	Morning-evening 30 times/round
4	limited of time	many things waiting for me to do		SKT3	Morning-evening 20t., 3-4t./wk, have not BP problem
5	limited of time		have pain and aches my arms /dizzy/ nuasea		evening 3t./wk have not BP problem
6	limited of time	Busy, many things to do	have pain and aches my arms; shoulders		Morning-evening 20t., 3-4t./wk, have not BP problem
7		Many things to do	have pain and aches my arms; shoulders/complicated technique		Morning-evening 5t., don't practice, obesity

Table 4.11 Barriers of SKT-2 practice among health care providers and village health volunteers (n=12) (cont.)

No.	Themes of barriers of SKT-2 practice				
	Limit of time	Related/obligation	Have aches and pain/complicated technique	Do another method	Take no notice/ have not BP problem
8	Have not any problem				Morning-evening 30-40
9		Too busy	have pain and aches my arms; shoulders/ complicated technique		don't practice
10			have pain and aches my arms; shoulders/ complicated technique		don't practice / have not BP problem /obstacle is inside persons' mind
11		Too busy	have pain and aches my arms; shoulders/ complicated technique		Stable BP, don't practice
12	limited of time	Many things to do		SKT-1/ yoga/ aerobic dancing exercise	have not BP problem/do SKT-1 evening 30.,4t./wk

The obstacle/barriers of SKT-2 practice among health care providers and village health volunteer were reported as,

1. Have limited time 5 persons for example

Case1: " I have work with limited time and have many things to do".

Case2: " I am very busy except morning time".

2. Have related and obligation as 9 persons.

Case2:"I am too busy and many things waited for me to do"

Case6:"I am too busy; I have many things to do."

3. SKT-2 technique is complicated technique as 4 persons.

Case2:"I cannot continue to do because this technique is complicated to doing."

Case10.” I have pain and aches my arms and shoulders. I think SKT-2 is complicated technique”

4. Have aches and pain as 7 persons for example

Case7: “I have pain and ache my arms; shoulders; I can do 2 times then I quit”.

Case5: “This technique makes me pain and aches shoulders and feel dizzy and vertigo”.

5. Cannot concentrate with the practice as 1 person.

Case2:”When I practicing, I cannot play concentrate with it because I have many things to think. ”

6. Feel dizzy or vertigo and feel nausea as 1 persons.

Case5.” I have pain and ache my arms and have dizzied with fells nausea when I do SKT-2.”

7. Do another method such as

7.1 meditation practice as 1 persons

Case1.”I have taken medicine to control my lipidemia”

7.2 Practice SKT-3, SKT-7 as 2 persons.

Case3.”Some day, I select to practicing SKT-3 and SKT-7 that depend on my health status. ”

7.3 Yoga and aerobic dancing exercise as 1 person.

Case12:”I practice yoga and aerobic dancing exercise every day.”

8. Have not blood pressure problem as 8 persons.

Case11.”I have not any blood pressure problem; I do not practice SKT-2.”

Case4.” I have not any blood pressure problem; I practice SKT-2 as 3-4 times per week.”

9. Have not any problem to practice SKT-2 as 1 person.

Case8:”I have not any problem to practice SKT-2 because the technique is good for health and good for me when I teaching.”

The synthesized themes of barriers to practice in the health care workers and village volunteers demonstrate a significant distrust in the ability of the practice to reduce blood pressure in hypertensive patients. It was thus important to stress to that the proactive team continue to practice SKT2 technique so that they can observe its affects in themselves and thus be able to teach others effectively.

Table 4.12 Supportive factors to practice SKT-2 among hypertensive persons

NO	Supportive factors to practice SKT-2							
	Personal discipline	Time management	Have good health result after practice	Reducing of BP level	Reminding to do from HCP/ relative/family	Praise word from HCP/relative/ family	Perceived advantage of SKT-2 for disease/health	Time/day; others
1	Concern ; remind to time practice	Tell customer to waiting	Felt relaxed	VHV told that my BP was reduced	HCP reminded me to do/ask about practicing		HCP told that SKT-2 helps to controlling BP	Morning 8a.m.
2		Too Busy/ Do in early morning	Pain and aches arms; shoulders was relieved/ sleep well	BP was reduced	HCP reminded me to do/ask about practicing		MD. toldmyBP was reduced /fell better	Early morning
3			Aches shoulders was relieved/ Feel relaxed	After practiced BP was reduced	HCP reminded me to do/ask about practicing			Morning /want to try this technique
4.	Discipline depend on each personal perceive	Fixed time to practice	Felt relaxed	After practiced BP was reduced	HCP reminded me to do/ask about practicing	HCP/children compliment me		Morning-evening 30t./day
5			Felt better in practice day		Mother/sissies remind me			Don’t do; I’m lazy
6	Have intension to do	Manage time for practice	Pain and aches arms; shoulders was relieved/ have not nausea	After practiced BP was reduced	HCP reminded me to do/ask about practicing		Fell better when continue doing	1st m. morning; 2nd m. Morning-evening

Table 4.12 Supportive factors to practice SKT-2 among hypertensive persons (cont.)

NO	Supportive factors to practice SKT-2							
	Personal discipline	Time management	Have good health result after practice	Reducing of BP level	Reminding to do from HCP/ relative/family	Praise word from HCP/relative/ family	Perceived advantage of SKT-2 for disease/health	Time/day; others
7		Busy			Even VHV asked me but I don't do			Don't practice; BP still high , obesity
8		Too busy			Even VHV asked me but I don't do			don't practice; BP still high , obesity
9	Remind me to do	Start practice when cooking rice	Felt relaxed	BP was reduced	HCP reminded me to do/ask about practicing	HCP/children compliment me	Help me to reduce BP; today it have reduced	early morning
10	Do SKT after exercise		Feel relaxed	After practiced BP was reduced	HCP reminded me to do/ask about practicing	Receive praise word from HCP		Morning-bedtime 30t/ fears to be paralyze
11	Don't be lazy		Muscle relax; feel relaxed		HCP reminded me to do/ ask about practicing			
12	Discipline depend on each personal perceive	Set time for SKT	Feel relaxed	After practiced BP was reduced	HCP reminded me to do/ask about practicing	HCP/children compliment me	HCP told that SKT-2 helps to controlling BP /want to teach daughter	Morning-evening 30

Table 4.12 Supportive factors to practice SKT-2 among hypertensive persons (cont.)

NO	Supportive factors to practice SKT-2							
	Personal discipline	Time management	Have good health result after practice	Reducing of BP level	Reminding to do from HCP/ relative/family	Praise word from HCP/relative/ family	Perceived advantage of SKT-2 for disease/health	Time/day; others
13		Set time in morning	Pain and aches arms; shoulders was relieved/ have not nausea	After practiced BP was reduced	HCP/husband reminded me to do/ask about practicing/don't want impose VHV	HCP/children compliment me	HCP told that SKT-2 helps to controlling BP	evening 20
14	Have to intend to do/ want to be healthy	Before bedtime	Felt relief		Even VHV asked me but I don't do	Neighbor ask me to do		Don't practice; BP still high ,obesity
15	Have to intend to do/ discipline		Pain and aches arms; shoulders was relieved / visual; brain work better	After practiced BP was reduced			BP was reduced; increasing blood flow to brain	evening 20t./ human should loves; take care themselves
16	Discipline depend on each personal perceive		Brain work better/felt relaxed	After practiced BP was reduced	HCP reminded me to do/ ask about practicing	Receive praise word from HCP	HCP told that SKT-2 helps to controlling BP	Morning-evening 30t/easy to do
17		Set time to do/ do when having free time					Want to know the result to health	don't practice; BP still high , obesity

Table 4.12 Supportive factors to practice SKT-2 among hypertensive persons (cont.)

NO	Supportive factors to practice SKT-2							
	Personal discipline	Time management	Have good health result after practice	Reducing of BP level	Reminding to do from HCP/ relative/family	Praise word from HCP/relative/ family	Perceived advantage of SKT-2 for disease/health	Time/day; others
18		Too busy/do before bed time	Felt relaxed / reduce anxiety		Even VHV asked me but I don't do		SKT-2 helps to controlling BP	2-3t/wk
19								Morning- 20t.
20		Do in morning/ Free time	Felt relaxed/ sleep well	After practiced BP was reduced	HCP reminded me to do/ask about practicing	HCP/children compliment me	Fell healthy	Morning- 20t.
21		morning	Pain and aches arms; shoulders; dizzywas relieved	After practiced BP was reduced	HCP reminded me to do/ask about practicing	HCP/ wife compliment me	Fell healthy	Morning- 10t./want to be healthy
22		morning	Felt relaxed; aches and pain was relieved	After practiced BP was reduced	HCP reminded me to do/ask about practicing	HCP/children compliment me		evening 20times
23	Do every day	morning			HCP reminded me to do/ask about practicing/should do 2 t. per day		HCP told that SKT-2 helps to controlling BP	Morning- 20-30t.
24		Morning-evening	Fell relax/ muscle relax	After practiced BP was reduced	HCP reminded me to do/ask about practicing		Fell healthy	Morning-evening 30-40t /easy to do

Supportive factors to practice SKT-2 among hypertensive persons was shown in this table was identified by theme as follow:

1. Had to have personal discipline as 4 persons. For example:

Case4.” Discipline depend on each personal perceive; who do who will get.”

Case1.” Concern and remind myself about the time practiced”

Case6.” Should have intension to do.”

2. Time management to practice as follow:

Case1.” Tell customer to waiting when I practicing”

Case2.”I am very busy so I set to practice in the early morning”

Case3.”I Start practice when cooking rice”

3. The expression; felling about the Having good health result after practice; as shown:

3.1 Fell relax; visual and brain work better and sleep well as 15 persons.

Case15:” After practiced my pain and aches arms; shoulders was relieved; my visual and brain work better.”

Case16.”I fells relax and my brain work better.”

3.2 Pain and aches of arms; shoulders; neck was relieved as 6 persons.

Case22.” I fells relax and my aches; pain is relieved”

Case15.” After practiced my pain and aches arms; shoulders was relieved.”

3.3 Dizzy and vertigo was relieved as 2 persons.

Case21.”My dizzy was gone after practice.”

4. The evident result have shown especially reduce BP level as shown:

Case24”after practiced village health volunteer tell me that my blood pressure level is reduced from 140 to 120/80.”

Case2:”when I going to visit medical doctor, he told me that my blood pressure level is better than previous time, now it is 120”

5. Received support to practice from health care providers; relative and family reminded to practice as follow:

5.1. Reminding to do and ask about practicing from health care providers; relative and family as 21 persons; for example:

Case20.” Village health volunteers regularly to visit me at home every week; to asking me about the practice that make me fell warming.”

Case4.” village health volunteers visit me at home every week and my children remind me to practice.”

5.2. Family member reminded to practice as 3 persons.

Case2:”My sister and mother remind me to do the SKT-2.”

5.3 Received praised word from health care providers; r elative and family as 11 persons.

Case21.” Health care provider and children my compliment me about practicing”

Case2.”Medical doctor told my Blood Pressure was reduced the complimented me.”

6. Perceived advantage of SKT-2 for disease and health was shown as follow:

6.1. Health care providers or medical doctor describe the advantage of SKT-2 for disease and health as 14 persons.

Case2.” Medical doctor tell me that my blood pressure level was reduced, after I practiced SKT-2.”

Case23.” Health care provider tell that SKT-2 helps me to controlling BP”

6.2. After practice felling good health or the blood pressure level was better as 8 persons.

Case24.” After practice I fells good health and want to continue practice.”

Case15.”That is truth about fells good and reducing blood pressure level after practice because I fell like more blood flow through my brain.”

Case12.” Medical doctor told that SKT-2 suitable to hypertension because after practice my blood pressure level was reduced. I want to teach my daughter to practicing.”

Table 4.13 Supportive factors to practice SKT-2 among health care providers and village health volunteers (n=12)

NO	Themes of supportive factors to practice SKT-2							
	Personal discipline	Time management	Have good health result after practice	Reducing of BP level	Reminder to do from HCP/ relative/ family	Praise from HCP/ relative/ family	Perceived advantage of SKT-2 for disease/ health	Time/day; others
1		morning-bedtime	Felt relax	After practice BP was reduced		children compliment me	Good for health	Bf .bed time3t./wk, have not BP problem
2		Too busy		After practiced BP was reduced			Even it good for health but I don't do	have not BP problem don't practice
3	I have discipline because I'm role instructor	Set time in evening	Pain and aches arms; shoulders was relieved/ feel relaxed	After practiced BP was reduced	Remind myself about advantage		Good for health/ chronic disease	Morning-evening 30 times/ round
4.		Many things to do	Feel relax/more concentration of work	After practiced BP was reduced		children compliment me	Good for health	Morning-evening 20t. 3-4t./wk, have not BP problem

Table 4.13 Supportive factors to practice SKT-2 among health care providers and village health volunteers (n=12) (cont.)

NO	Themes of supportive factors to practice SKT-2							
	Personal discipline	Time management	Have good health result after practice	Reducing of BP level	Reminder to do from HCP/ relative/ family	Praise from HCP/ relative/ family	Perceived advantage of SKT-2 for disease/ health	Time/day; others
5		Evening/free time	Pain and aches arms; shoulders; dizzy was relieved			HCP compliment me	Good for health	evening 3t./wk have not BP problem
6		Busy/morning-bedtime	Feel relax/ pain and aches neck was relieved	After practiced BP was reduced		HCP should praise to patient and make them have faith to this practice	Want to be healthy/ take care my health	Morning-evening 20t. 3-4t./wk, have not BP problem
7		Busy/ set free time	Feel relax	After practiced BP was reduced in both me + patient	HCP reminded me to do/ask about practicing	children compliment me		Morning-evening 5t. don't practice, obesity
8	Should have discipline that help improve self confident when teaching		Pain and aches arms; shoulders was relieved Fell relax/ muscle relax			Patient gave me a praise word after teach them	Fell healthy / improve self confident when teaching	Morning-evening 30-40t.

Table 4.13 Supportive factors to practice SKT-2 among health care providers and village health volunteers (n=12) (cont.)

NO	Themes of supportive factors to practice SKT-2							
	Personal discipline	Time management	Have good health result after practice	Reducing of BP level	Reminder to do from HCP/ relative/ family	Praise from HCP/ relative/ family	Perceived advantage of SKT-2 for disease/ health	Time/day; others
9		Busy/do in bedtime	Pain and aches arms; shoulders was relieved Fell relax	After practiced BP was reduced	Discussion among VHV group about the practice	husband/childre n compliment me	Help to control BP level	don't practice
10	Discipline depend on each personal perceive			After practiced BP was reduced			Good for health	don't practice / have not BP problem /obstacle is inside persons' mind
11	Discipline depend on each personal perceive	Busy/ do in free time	Feel relaxed/ dizzy was relieved	After practiced BP was reduced			Help to healing chronic disease	StableBP, don't practice
12	Should do as a habit Every day		Fell relax/ muscle relax	After practiced BP was reduced		HCP/Patient gave me a praise word after teach them	Good for health/BP was reduced if continue to do	have not BP problem/do SKT-1 evening 30.,4t./wk

Supportive factors to practice SKT-2 among health care providers and village health volunteers by theme as follow:

1. Had to have personal discipline as 4 persons. For example:

Case11.” Discipline depend on each personal perceive; who do who will get.”

Case3.” I have discipline to practice because I’m role instructor”

Case8.” I should have discipline that help improve self confident when teaching.”

2. Time management to practice as follow:

Case6.”I am too busy so I set time to practice in morning and bedtime”

Case9.”I have many things to do all day so I practice in bedtime”

3. The expression; felling about the Having good health result after practice; as shown:

3.1 Fell relax; visual and brain work better and sleep well as 9 persons.

Case.12” I fells relax and muscle relax after do this SKT. ”

3.2 Pain and aches of arms; shoulders; neck was relieved as 6 persons.

Case9.” After practice my pain and aches arms; shoulders was relieved”

3.3 Dizzy and vertigo was relieved as 2 persons.

Case11.”I fells relaxed and muscle relax; my dizzy was relieved”

3.4 Have more concentrate to work as 1 person.

Case12.”I have more concentrate to work after practiced”

4. The evident results have shown especially reduced BP level as 10 persons.

5. Received support to practice from health care providers; relative and family reminded to practice as 3 persons; for example:

Case9”I discuss among village health volunteer groups about the practice”

Case3.”I always remind myself about advantage of practicing SKT-2.”

6. Received praised word from health care providers; patient; relative and family member as follow:

6.1. Received praised word from health care providers; patient; relative and family member as 7 persons.

Case12.” Health care providers and hypertensive persons give me a praise word after teach them.”

Case9. “My husband and children compliment me about the practicing”

6.2. Received praised word from health care providers and hypertensive persons as 2 persons.

Case8:” My confident is increasing after hypertensive persons give me a praise word when teaching them”

7. Perceived advantage of SKT-2 for controlled disease and promoted health was shown as 11 persons.

Case12.” I think this method is good for health and blood pressure will be reduced if continue to do”

Case3.” SKT-2 is good for health and suitable for chronic disease.”

Case11.” SKT-2 help hypertensive persons to healing their chronic disease.”

3.2) Characteristics of proactive practical team.

The focus group among health care providers aimed to find out the specific group characteristics, knowledge and skills of proactive practical team about SKT-2 technique, to access adherence to monitoring and follow-up method guidelines.

The result from this section would aide to develop guidelines for improving self-monitoring of blood pressure for hypertensive group and would be used as baseline to develop guidelines for health care providers for teaching, monitoring and evaluation of hypertensive patient practicing.

The role of researcher in this step as facilitator was to set group meeting to provide knowledge and support for the proactive practical team.

The result of this step were from focus group health care provider was showed as followed:

The result of focus group

Four health care providers and twelve village health volunteers participated in focus group to establish the proactive practice team and develop guidelines by exploring barriers and facilitators of using SKT-2. The interviewers used open-ended questions in order to probe and clarify the meanings of participants' responses. Participants were asked the following:

1. Health care provider responsibility to take care of hypertensive persons should be what?

- Should consist of home visit to follow-up the health of patient; progress of disease and checked up SKT practice. About SKT-2 practice had to check posture of the SKT-2 technique such as arms adhere to ears with strength arms; palms had to close each other.
- Advise hypertensive persons about disease; medicine; diet. Answer their health question about SKT-2 technique and should be reported their blood pressure after measured. Reminded and supported the hypertensive persons to continued practice SKT-2 technique.
- Regularly home visit.
- Have good knowledge about hypertension; SKT-2 technique; and the other health problems.

2. Staff and responsibility of staff

- Health care providers of district health promotion hospital and village health volunteer.
- Health leaders from all sectors of community such as family member.
- Community leaders for example sub-district headman, village headman, and officers of sub-district administration organization.
- All of staff should support health care providers and village health volunteers to follow hypertensive persons. Moreover, staff had to have good relationships with the target population as a result of their acquaintance with the region.

3. Essential skill for proactive team to control blood pressure

- Knowledge of hypertension; diet; exercise and herbal medicine.
- Skills about blood pressure measurement, posture of patient when measuring, communication skill, technique to approach patients and relationship skills.

4. Method to follow up hypertensive persons

- Home visit every week.
- Meeting every month.
- Group discussions among hypertensive team.
- Telephone appointments.
- Record the results of follow up in a hand book of SKT-2.
- Present the results of follow up at every meeting time.
- Present the person with best practice to be a role model.

5. Successful methods for follow up hypertensive persons

- Take care patient with gentleness, sincerity and concern for patient's health problem.
- Good relationship.
- Regularly home visits.
- Gave praise to patients when they had good practice.

6. Which organization should network

- Schools and teachers should participate.
- All of community sectors should be participate in setting team.

7. Success factors

- Increasing number of village health volunteers.
- Choosing the health volunteers who have suitable age.
- Selecting health volunteer who are willing to work with this team.
- Skill and knowledge of team members.

- Health care team and hypertensive persons who perceived the advantages of SKT-2 practice.
- Persons with good practice should be shown up to be role models.
- Plan to implement subsequent projects with similar teams and similar chronic disease context.

From this study, the researcher can get up the key word of good proactive team as " Kao-jai; son-jai and sai-jai".

Step 4 : Developed guideline of practice and monitoring of SKT-2 technique.

After exploring the barriers and facilitators of using SKT-2 technique and determining characteristics of proactive practical team, the next step of the study was to develop guidelines for practice and monitoring of SKT-2 technique.

The result of this step was showed as follows:

a) *The proactive practical team* created appropriate appointment times to follow-up the hypertensive persons' practice and developed guidelines to control blood pressure in the form of:

i) Handbook of practice SKT-2 technique that consists of principles of practice; postural practice; breathing method; reasons for practice and guidelines to answer frequent question about practice the technique.

ii) Guidelines of home visit every week (for two-month) that consist of checklist of the correct of postural practice; breathing method; number of counting breathe and recorded blood pressure before and after practice.

b) *The group of hypertensive persons* created suitable time of practice and appointment times to follow-up, receive guidelines of practice in the form of SKT technique pamphlets and receive recording forms for practice SKT-2 technique.

Step 5: Training and Practice of SKT-2 technique on Hypertensive persons.

After the proactive practical team received training in SKT-2 technique, teaching methods and following methods, the team then taught the practice to hypertensive persons. The proactive practical team and the researcher set the training

session over a one-day period at Kaerai district health promotion hospital. The of training topics consisted of :

1. How to practice SKT-2 technique.
2. What is the mechanism of SKT-2 technique to control blood pressure?
3. What is the benefit of SKT-2 technique?
4. How is SKT-2 technique different from others exercises and meditation methods? (The detail was showed in appendix)

The important steps of practice to control blood pressure that the proactive practical team emphasized to the hypertensive patients included:

1. The arms are raised straight above the head so that they are against each ear **and the palms are pressed together above the head**.

2. The practitioner then gently closes her eyes and with the tip of the tongue on against the palate, takes a deep, full inhalation breath through the nose.

3. The breath was held for 3 to 4 **counts then slowly released with a gentle exhalation through the mouth.**

4. The practitioner should remain peaceful and mindful of the breathing and the posture throughout the exercise.

5. This is repeated 30 times.

6. The practitioner **should consistency practice every day at least 2 round** with **30 times in each round of practice.** The effective result of SKT-2 Technique to control blood pressure among hypertensive persons should continue and **consistency practice at least two months**.

The method of training used in this step consist of lectures, demonstration and re-demonstration by the participants using posters, PowerPoint presentations and pamphlets as media of teaching.

The proactive practical team and hypertensive persons then made an agreement to practice SKT-2 technique for 2 month with scheduled monitoring of practice every week by proactive practical team and daily self-recording about the practice of SKT-2 technique to include recorded blood pressure before and after practice.

Part III Monitoring and evaluation: consisted of four steps as followed:

Step 1: Monitoring using SKT-2 techniques and blood pressure level

Step 2: Evaluating the process and program of SKT-2 technique

Step 3: Evaluating of Knowledge, attitude of SKT-2 technique and blood pressure level

The process of this study was conducted to ensure that hypertensive persons can control their blood pressure by using SKT-2 technique with support from nurse and health care provider. The approaches and process were controlled blood pressure checked from blood pressure level, knowledge about SKT-2 technique by using quantitative method: experimental quasi (pre-posttest in two months).

Monitoring

a) *The proactive practical team* monitored their practice of SKT-2 techniqueas follows:

i) Home visits to record blood pressure before and after practice SKT-2 technique every week for two-month.

ii) Check and record their method and technique of practice SKT-2 technique every week for two-month.

b) *The health care providers* monitored their practice ofSKT-2 techniqueas follows:

i) Recorded their method and technique of practice SKT-2 technique monthly for two-month.

ii) Recorded their blood pressure every week for two-month.

Evaluation

a) Group of hypertensive persons evaluated the result of their practice SKT-2 technique by:

i) Using quantitative method: experimental quasi (pre-posttest in two months) to compare blood pressure level, knowledge and attitude of SKT-2 technique. The blood pressure levels were compared at the first time before practice; the second

time (one-month after) and the third time (two-month after). The knowledge and attitude of SKT-2 technique was compared at the first time before practice and the second time (two-month after).

ii) Monthly group meetings were held at Kaerai district health promotion hospital to reflect on the results of, and obstacles to practice with the hypertensive group and proactive practical team who support them practicing. The meetings were intended facilitate to exchange and sharing of experience with the practice and discussion to find suitable problem solving methods.

iii) Evaluating the process of program during practice by using questionnaire to evaluate the program at time one-month after practice. The evaluation consisted of content of SKT-2 technique, process of teaching and monitoring of instructor model and media of teaching.

b) The health care providers evaluated the result of their practice of SKT2 technique and results of their teaching and monitoring among group of hypertensive persons as follows:

Result of their practice

i) Using quantitative method: experimental quasi (pre-posttest in two months) to compare blood pressure level, knowledge and attitude of SKT-2 technique. The blood pressure levels were compared at the first time before practice; the second time (one-month after) and the third time (two-month after). The knowledge and attitude of SKT-2 technique were compared at the first time before practice; the second time (two-month after).

ii) Monthly group meeting at Kaerai district health promotion hospital to reflex the result of practice and obstacles during practice with their proactive practical team. In order to exchange and share experience of practice and discussed to find out suitable problem solving method.

iii) Evaluated the process of program during practice by using questionnaire to evaluate the program at time one-month after practice. The evaluation consist of content of SKT-2 technique; process of teaching and monitoring of instructor model (self ratting score) and media of teaching.

Result of their teaching and monitoring among group of hypertensive persons

The health care providers observed and participated in monthly group meeting at Kaerai district health promotion hospital to reflex the result of practice and obstacles during practice proactive practical team. In order to support the hypertensive persons to exchange and share experience of practice and discussed to find out suitable problem solving method.

1. Hypertensive persons

Promoting blood pressure control among hypertensive persons with this model required cooperation between hypertensive persons and proactive practical team. Under the model hypertensive persons received the knowledge of SKT-2 techniques, were assesses regarding their attitude of SKT-2 technique and skills of practicing SKT-2 technique.

After two months of training in SKT-2 technique, the researcher measured the knowledge and the attitude of SKT technique to compare levels before (at baseline) and after the two month of training, using Wilcoxon Signed Ranks Test. The mean differences of attitude were tested by Paired T-Test. Due to an unmet normality assumption, Wilcoxon was used to examine the difference of knowledge before and after implementation. The results revealed that the mean of knowledge of SKT technique before intervention was not statistically significantly different from the mean of knowledge of SKT technique after intervention ($t = 1.814$, $p > 0.05$). In addition attitude on SKT technique also showed not statistically significantly different from the mean of attitude at the baseline and after the intervention ($t = .699$, $P > 0.05$).

Table 4.14 Comparison of knowledge and attitude of hypertensive persons at baseline and after implementation (n = 24)

Variable	Mean±SD		Test statistics	df	P-value
	Baseline	**After**			
Knowledge	53.83±7.33	55.79±7.55	1.814[b]	24	NS
Attitude	55.88±8.73	56.79±7.86	.699 a	24	NS

[a]Paired-t-test

[b]Wilcoxon Signed Ranks Test

2. Proactive practical team

Knowledge and the attitude of SKT -2 technique among the health care providers were measured twice, before and after the intervention. The mean differences of attitude were tested by Paired T-Test. Due to an unmet normality assumption, Wilcoxon was used to examine the difference of knowledge before and after implementation. The result revealed that the mean of knowledge of SKT-2 technique before intervention was not statistically significantly different from the mean of knowledge of SKT-2 technique after intervention ($t = 1.568$, $p > 0.05$). In addition attitude on SKT-2 technique also showed no statistically significantly difference from the mean of attitude at the baseline and after the intervention ($t=.409$, $P>0.05$).

Table 4.15 Comparison of knowledge and attitude of SKT-2 technique baseline and after implementation.(n = 12)

Variable	Mean±SD		Test statistics	df	P-value
	Baseline	After 12 weeks			
Knowledge	56.33±4.52	59.75±4.43	1.586[b]	12	NS
Attitude	**61.08±6.14**	**61.67±4.60**	**.409** [a]	**12**	**NS**

[a] Paired-t-test

[b]Wilcoxon Signed Ranks Test

Table 13 shows that attitude on SKT technique was not statistically significantly different from the mean of attitude at the baseline and after the intervention (t=.409, P>0.05).

3. Process of application of SKT-2 technique in community

Monitoring and Evaluation of process

Evaluating processes during training the program in one month During the one month of program, the intervention was evaluated by hypertensive persons and health care provider as follows:

Table 4.16 Evaluating processes during training the program in 1 month by hypertensive persons (n=24)

Detail of process evaluation	Number	%	Mean	S.D.
Appropriateness of technique for training			3.29	0.464
- Most	7	29.2		
- Medium	**17**	**70.8**		
- Less	0	0.0		
- Not sure	0	0.0		
Simply of technique for self-care			3.25	0,442
- Most	6	25.0		
- Medium	**18**	**75.0**		
- Less	0	0.0		
- Not sure	0	0.0		
Safety of technique for self-care			3.46	0.509
- Most	11	45.8		
- Medium	**13**	**54.2**		
- Less	0	0.0		
- Not sure	0	0.0		
Convenience of technique for self-care			3.42	0.504
- Most	10	41.7		
- Medium	**14**	**58.3**		
- Less	0	0.0		
- Not sure	0	0.0		
Technique for self-care can reduce cost of treatment			3.33	0.868
- Most	**12**	**50.0**		
- Medium	10	41.7		
- Less	0	0.0		
- Not sure	2	8.3		
Everybody can train the technique for self-care			3.54	0.509
- Most	**13**	**54.2**		
- Medium	11	45.8		
- Less	0	0.0		
- Not sure	0	0.0		

Table 4.16 Evaluating processes during training the program in 1 month by hypertensive persons (n=24) (cont.)

Detail of process evaluation	Number	%	Mean	S.D.
Training the technique for self-care can make you be healthier.			3.17	0.816
- Most	8	33.3		
- Medium	**14**	**58.3**		
- Less	0	0.0		
- Not sure	2	8.3		
Training the technique for self-care is appropriate with your illness.			3.17	0.816
- Most	8	33.3		
- Medium	**14**	**58.3**		
- Less	0	0.0		
- Not sure	2	8.3		
Satisfaction of training			3.13	0.741
- Most	7	29.2		
- Medium	**14**	**58.3**		
- Less	2	8.3		
- Not sure	1	4.2		
Satisfaction of your current health			3.17	0.868
- Most	9	37.5		
- Medium	**12**	**50.0**		
- Less	1	4.2		
- Not sure	2	8.3		
Your relative is satisfied your health.			3.21	0.884
- Most	10	41.7		
- Medium	**11**	**45.8**		
- Less	1	4.2		
- Not sure	2	8.3		
Your trainer follows to take care and provide consultation to you.				
- Every week	**21**	**87.5**		
- Every month	3	12.5		

Table 4.16 Evaluating processes during training the program in 1 month by hypertensive persons (n=24) (cont.)

Detail of process evaluation	Number	%	Mean	S.D.
Your trainer follows your symptom after training.				
- Every week	**22**	**91.7**		
- Every month	2	8.3		
Time of practice				
- Before breakfast	7	29.16		
- After breakfast				
- Before lunch				
- After lunch				
- Before dinner	4	16.64		
- After dinner				
Duration of practice			10.92	3.049
- 5 minutes	2	8.3		
- 7 minutes	1	4.2		
- 10 minutes	**14**	**58.3**		
- 15 minutes	7	29.2		
Health status before training SKT-2			52.50	16.219
- 30	3	12.5		
- 40	**6**	**25.0**		
- 50	**6**	**25.0**		
- 60	4	16.7		
- 70	1	4.2		
- 80	4	16.7		
Health status after training SKT-2			65.00	17.937
- 30	1	4.2		
- 40	3	12.5		
- 50	3	12.5		
- 60	**5**	**20.8**		
- 70	4	16.7		
- 80	4	16.7		
- 90	4	16.7		

Table 4.16 Evaluating processes during training the program in 1 month by hypertensive persons (n=24) (cont.)

Detail of process evaluation	Number	%	Mean	S.D.
You had been ill during training in 1 month				
- No	**24**	**100.0**		
- Yes	0	0.0		
You had reduced taking medicine during training in 1 month				
- No	11	45.8		
- Yes	**13**	**54.2**		
You use SKT-2 and other methods				
- No	**15**	**62.5**		
- Yes	9	37.5		
You suggest or advice other people to use SKT -2				
- No	12	50.0		
- Yes	12	50.0		
Number of people advised to use SKT-2 by hypertensive persons			1.67	0.778
- 1	**6**	**25.0**		
- 2	4	16.7		
- 3	2	8.3		
- No answer	12	50.0		
Staffs take care of you more than before training.			3.71	0.690
- Most	**19**	**79.2**		
- Medium	4	16.7		
- Less	0	0.0		
- Not sure	1	4.2		
Handbook for training			3.78	0.518
- Very good	1	4.2		
- Good	**16**	**66.7**		
- Medium	6	25.0		
- Must improved	0	0.0		
- Not sure	1	4.2		

Table 4.16 Evaluating processes during training the program in 1 month by hypertensive persons (n=24) (cont.)

Detail of process evaluation	Number	%	Mean	S.D.
Media used for training			3.70	0.765
- Very good	1	4.2		
- Good	**16**	**66.7**		
- Medium	5	20.8		
- Must improved	0	0.0		
- Not sure	1	4.2		
- No answer	1	4.2		
Methods of teaching			3.83	0.834
- Very good	2	8.3		
- Good	**18**	**75.0**		
- Medium	1	4.2		
- Must improved	1	4.2		
- Not sure	1	4.2		
Techniques of teaching			4.00	0.522
- Very good	3	12.5		
- Good	**17**	**70.8**		
- Medium	3	12.5		
- Must improved	0	0.0		
- Not sure	0	0.0		
- No answer	1	4.2		
Teaching to understand easily			3.61	0.499
- Very good	0	0.0		
- Good	**14**	**58.3**		
- Medium	9	37.5		
- Must improved	0	0.0		
- Not sure	0	0.0		
- No answer	1	4.2		
Environment of training			3.83	0.388
- Very good	0	0.0		
- Good	**19**	**79.2**		
- Medium	4	16.7		
- Must improved	0	0.0		
- Not sure	0	0.0		
- No answer	1	4.2		

Table 4.16 Evaluating processes during training the program in 1 month by hypertensive persons (n=24) (cont.)

Detail of process evaluation	Number	%	Mean	S.D.
Ability of trainer in teaching			4.04	0.592
- Very good	4	16.7		
- Good	**16**	**66.7**		
- Medium	3	12.5		
- Must improved	0	0.0		
- Not sure	0	0.0		
- No answer	1	4.2		

After participating in the program for one month, hypertensive persons evaluated the process of training the program. The evaluation results are shown in Table 15. The majority of hypertensive persons chose these items in the medium level, appropriateness of technique for training, (70.8%), simply of technique for self-care (75.0%), safety of technique for self-care (54.2%), convenience of technique for self-care (58.3%), training the technique for self-care can make you be healthier (58.3%), training the technique for self-care is appropriate with your illness (58.3%), satisfaction of training (58.3%), satisfaction of your current health (50.0%), and your relative is satisfied your health (45.8%).

Moreover, the majority of them agreed that these items were in the most level. These items included technique for self-care can reduce cost of treatment (50.0%) and everybody can train the technique for self-care (54.2%). The majority of hypertensive persons agreed that their trainers followed to take care and provide consultation for them every week (87.5%) and their trainers followed their symptoms after training every week (91.7%). Most hypertensive persons practice SKT-2 technique before having breakfast (29.16%) and the majority of them practiced around 10 minutes (58.3%). The average and standard deviation of duration of practice was 10.92 minutes and 3.049, respectively.

Around sixty-two percent of hypertensive persons agreed that their health before joining training SKT-2 technique were in the medium to worse level (score 30 = 12.5%, 40 = 25.0%, and 25.0%); however, around sixty-eight percent of them agreed their health after joining training SKT-2 technique were good to very good (score 60 =20.8% and score 70, 80, and 90 = 16.7%, equally). All of them had not been ill during training for 1 month (100.0%). Moreover, around 54.2% of them had reduced taking medicine during training for 1 month and 62.5% of then used only SKT-2 technique. A half of them (50.0%) advised other people using SKT-2 technique.

The majority of hypertensive persons agreed that staffs took care of them more than before joining the training in the most level (79.2%). Furthermore, the agreed that these items were in the good level: handbook for training (66.7%), media used for training (66.7%), methods of teaching (75.0%), techniques of teaching (70.8%), teaching to understand easily (58.3%), environment of training (79.2%), and ability of trainer in teaching (66.7%).

Table 4.17 Evaluating the health care providers during training the program in 1 month by hypertensive persons(n=24)

Detail of trainer evaluation	Number	%	Mean	S.D.
Understand of comprehensive content			3.96	0.367
- Very good	1	4.2		
- Good	**20**	**83.3**		
- Medium	2	8.3		
- Must improved	0	0.0		
- Not sure	0	0.0		
- No answer	1	4.2		
Knowledge			3.91	0.417
- Very good	1	4.2		
- Good	**19**	**79.2**		
- Medium	3	12.5		
- Must improved	0	0.0		
- Not sure	0	0.0		
- No answer	1	4.2		

Table 4.17 Evaluating the health care providers during training the program in 1 month by hypertensive persons (n=24) (cont.)

Detail of trainer evaluation	Number	%	Mean	S.D.
Attitude			3.83	0.491
- Very good	1	4.2		
- Good	**17**	**70.8**		
- Medium	5	20.8		
- Must improved	0	0.0		
- Not sure	0	0.0		
- No answer	1	4.2		
Skill of practical teaching			3.91	0.417
- Very good	1	4.2		
- Good	**19**	**79.2**		
- Medium	3	12.5		
- Must improved	0	0.0		
- Not sure	0	0.0		
- No answer	1	4.2		
Instructive ability			3.87	0.458
- Very good	1	4.2		
- Good	**18**	**75.0**		
- Medium	4	16.7		
- Must improved	0	0.0		
- Not sure	0	0.0		
- No answer	1	4.2		

For the health care providers evaluation, the majority of hypertensive persons agreed that all items were in the good level. These items are as follows: understand of comprehensive content (83.3%), knowledge (79.2%), attitude (70.8%), skill of practical teaching (792%), and instructive ability (75.2%).

Table 4.18 Evaluating processes during training the program in 1 month by the health care providers (n=12)

Detail of process evaluation	Number	%	Mean	S.D.
Appropriateness of technique for training			3.42	0.669
- Most	**6**	**50.0**		
- Medium	5	41.7		
- Less	1	8.3		
- Not sure	0	0.0		
Simply of technique for self-care			3.17	0.389
- Most	2	16.7		
- Medium	**10**	**83.3**		
- Less	0	0.0		
- Not sure	0	0.0		
Safety of technique for self-care			3.58	0.515
- Most	**7**	**58.3**		
- Medium	5	41.7		
- Less	0	0.0		
- Not sure	0	0.0		
Convenience of technique for self-care			3.33	0.651
- Most	5	41.7		
- Medium	**6**	**50.0**		
- Less	1	8.3		
- Not sure	0	0.0		
Technique for self-care can reduce cost of treatment			3.08	0.793
- Most	3	25.0		
- Medium	**8**	**66.7**		
- Less	0	0.0		
- Not sure	1	8.3		

Table 4.18 Evaluating processes during training the program in 1 month by the health care providers (n=12) (cont.)

Detail of process evaluation	Number	%	Mean	S.D.
Everybody can train the technique for self-care				
- Most	**8**	**66.7**	3.67	0.492
- Medium	4	33.3		
- Less	0	0.0		
- Not sure	0	0.0		
Training the technique for self-care can make you be healthier.			3.25	0.866
- Most	5	41.7		
- Medium	**6**	**50.0**		
- Less	0	0.0		
- Not sure	1	8.3		
Training the technique for self-care is appropriate with your illness.			3.50	0.522
- Most	**6**	**50.0**		
- Medium	**6**	**50.0**		
- Less	0	0.0		
- Not sure	0	0.0		
Satisfaction of training			3.50	0.674
- Most	**7**	**58.3**		
- Medium	4	33.3		
- Less	1	8.3		
- Not sure	0	0.0		
Satisfaction of your current health			3.50	0.674
- Most	**7**	**58.3**		
- Medium	4	33.3		
- Less	1	8.3		
- Not sure	0	0.0		
Your relative is satisfied your health.			3.33	1.155
- Most	**8**	**66.7**		
- Medium	2	16.7		
- Less	0	0.0		
- Not sure	2	8.3		

Table 4.18 Evaluating processes during training the program in 1 month by the health care providers (n=12) (cont.)

Detail of process evaluation	Number	%	Mean	S.D.
Your trainer follows to take care and provide consultation to you.				
- Every week	**9**	**75.0**		
- Every month	3	25.0		
Your trainer follows your symptom after training.				
- Every week	**7**	**58.3**		
- Every month	5	41.7		
Time of practice				
- Before breakfast	2	16.67		
- After breakfast	0	0.0		
- Before lunch	0	0.0		
- After lunch	0	0.0		
- Before dinner	2	16.67		
- After dinner	0	0.0		
- Before sleep	1	8.33		
Duration of practice			12.92	3.343
- 10 minutes	**6**	**50.0**		
- 15 minutes	5	41.7		
- 20 minutes	1	8.3		
Health status before training SKT			55.00	15.076
- 20	1	8.3		
- 40	1	8.3		
- 50	3	25.0		
- 60	**5**	**41.7**		
- 70	1	8.3		
- 80	1	8.3		

Table 4.18 Evaluating processes during training the program in 1 month by the health care providers (n=12) (cont.)

Detail of process evaluation	Number	%	Mean	S.D.
Health status after training SKT-2			65.83	17.816
- 30	1	8.3		
- 40	1	8.3		
- 50	1	8.3		
- 60	1	8.3		
- 70	**4**	**33.3**		
- 80	3	25.0		
- 90	1	8.3		
You had been ill during training in 1 month				
- No	**10**	**83.3**		
- Yes	2	16.7		
You had reduced taking medicine during training in 1 month				
- No	4	33.3		
- Yes	**8**	**66.7**		
You use SKT-2 and other methods				
- No	**7**	**58.3**		
- Yes	5	41.7		
You suggest or advice other people to use SKT -2 technique				
- No	0	0.0		
- Yes	**12**	**100.0**		
Number of people advised to use SKT-2 technique by hypertensive persons			12.75	17.051
- 2	**3**	**25.0**		
- 3	**3**	**25.0**		
- 5	1	8.3		
- 6	1	8.3		
- 7	1	8.3		
- 30	1	8.3		
- 40	1	8.3		
- 50	1	8.3		

Table 4.18 Evaluating processes during training the program in 1 month by the health care providers (n=12) (cont.)

Detail of process evaluation	Number	%	Mean	S.D.
Staffs take care of you more than before training.			3.00	1.044
- Most	4	33.3		
- Medium	**6**	**50.0**		
- Less	0	0.0		
- Not sure	2	16.7		
Handbook for training			3.83	0.389
- Very good	0	0.0		
- Good	**10**	**83.3**		
- Medium	2	16.7		
- Must improved	0	0.0		
- Not sure	0	0.0		
Media used for training			3.83	0.389
- Very good	0	0.0		
- Good	**10**	**83.3**		
- Medium	2	16.7		
- Must improved	0	0.0		
- Not sure	0	0.0		
- No answer	0	0.0		
Methods of teaching			4.08	0.669
- Very good	3	25.0		
- Good	**7**	**58.3**		
- Medium	2	16.7		
- Must improved	0	0.0		
- Not sure	0	0.0		
Techniques of teaching			4.08	0.515
- Very good	2	16.7		
- Good	**9**	**75.0**		
- Medium	1	8.3		
- Must improved	0	0.0		
- Not sure	0	0.0		

Table 4.18 Evaluating processes during training the program in 1 month by the health care providers (n=12) (cont.)

Detail of process evaluation	Number	%	Mean	S.D.
Teaching to understand easily			3.67	0.492
- Very good	0	0.0		
- Good	**8**	**66.7**		
- Medium	4	33.3		
- Must improved	0	0.0		
- Not sure	0	0.0		
Environment of training			3.58	0.515
- Very good	0	0.0		
- Good	**7**	**58.3**		
- Medium	5	41.7		
- Must improved	0	0.0		
- Not sure	0	0.0		
Ability of trainer in teaching			3.92	0.669
- Very good	2	16.7		
- Good	**7**	**58.3**		
- Medium	3	25.0		
- Must improved	0	0.0		
- Not sure	0	0.0		

According to joining the program for 1 month, hypertensive persons evaluated the process of training the program. The results of process evaluation are shown as follows (Table 7). The majority of hypertensive persons chose these items in the medium level: appropriateness of technique for training, (70.8%), simply of technique for self-care (75.0%), safety of technique for self-care (54.2%), convenience of technique for self-care (58.3%), training the technique for self-care can make you be healthier (58.3%), training the technique for self-care is appropriate with your illness (58.3%), satisfaction of training (58.3%), satisfaction of your current health (50.0%), and your relative is satisfied your health (45.8%).

Moreover, the majority of them agreed that these items were in the most level. These items included technique for self-care can reduce cost of treatment (50.0%) and everybody can train the technique for self-care (54.2%). The majority of hypertensive persons agreed that their trainers followed to take care and provide consultation for them every week (87.5%) and their trainers followed their symptoms after training every week (91.7%). Most hypertensive persons practice SKT-2 technique before having breakfast (16.67%) and the majority of them practiced around 10 minutes (58.3%). The average and standard deviation of duration of practice was 10.92 minutes and 3.049, respectively.

Around sixty-two percent of agreed that their health before joining training SKT-2 technique were in the medium to worse level (score 30 = 12.5%, 40 = 25.0%, and 25.0%); however, around sixty-eight percent of them agreed their health after joining training SKT-2 technique were good to very good (score 60 =20.8% and score 70, 80, and 90 = 16.7%, equally). All of them had not been ill during training for 1 month (100.0%). Moreover, around 54.2% of them had reduced taking medicine during training for 1 month and 62.5% of then used only SKT-2 technique. A half of them (50.0%) advised other people using SKT-2 technique.

The majority of hypertensive persons agreed that staffs took care of them more than before joining the training in the most level (79.2%). Furthermore, the agreed that these items were in the good level: handbook for training (66.7%), media used for training (66.7%), methods of teaching (75.0%), techniques of teaching (70.8%), teaching to understand easily (58.3%), environment of training (79.2%), and ability of trainer in teaching (66.7%).

Table 4.19 Evaluating the health care providers during training the program in 1 month by the health care providers (n=12)

Detail of process evaluation	Number	%	Mean	S.D.
Understand of comprehensive content			3.92	0.669
- Very good	2	16.7		
- Good	**7**	**58.3**		
- Medium	3	25.0		
- Must improved	0	0.0		
- Not sure	0	0.0		
Knowledge			3.58	0.669
- Very good	1	8.3		
- Good	5	41.7		
- Medium	**6**	**50.0**		
- Must improved	0	0.0		
- Not sure	0	0.0		
Attitude			4.00	0.603
- Very good	2	16.7		
- Good	**8**	**66.7**		
- Medium	2	16.7		
- Must improved	0	0.0		
- Not sure	0	0.0		
Skill of practical teaching			4.00	0.603
- Very good	2	16.7		
- Good	**8**	**66.7**		
- Medium	2	16.7		
- Must improved	0	0.0		
- Not sure	0	0.0		
Instructive ability			3.75	0.754
- Very good	2	16.7		
- Good	**5**	**41.7**		
- Medium	**5**	**41.7**		
- Must improved	0	0.0		
- Not sure	0	0.0		

For the health care providers evaluation, the majority of hypertensive persons agreed that all items were in the good level. These items are as follows: understand of comprehensive content (83.3%), knowledge (79.2%), attitude (70.8%), skill of practical teaching (792%), and instructive ability (75.2%)**.**

4. Outcome of controlling Blood Pressure

Comparison of blood pressure level in three months

Repeated measures were performed to compare the blood pressure level at time-1 (baseline); time-2 (the fourth week) and the end of study at time-3(the eighth week) to test blood pressure level improvement.

Test assumption of Repeated measure one-way ANOVA

Assumptions

1. Independent variable where participants were tested on the same dependent variable at least 2 times.
2. The dependent variable was interval or ratio (continuous).
3. Dependent variable was approximately normally distributed.
4. Met assumption of compound symmetry (Sphericity)

Table 4.20 Assumption testing results

Dependent variables	Assumption testing results			
	#1	#2	#3	#4
Systolic blood pressure at time 1st, time 2nd, and time 3rd of Hypertensive persons	✓	✓	✓	✓ (by the Greenhouse-Geisser test)
Diastolic blood pressure at time 1st, time 2nd, and time 3rd of Hypertensive persons	✓	✓	✓	✓(by the Mauchly's test)
Systolic blood pressure at time 1st, time 2nd, and time 3rd of the health care providers	✓	✓	✓	✓ (by the Mauchly's test)
Diastolic blood pressure at time 1st, time 2nd, and time 3rd of the health care providers	✓	✓	✓	✓ (by the Mauchly's test)

The assumption number 1 and 2 were met because blood pressure was ratio scale and was tested on same person each of the three times.

For assumption number3, dependent variable was approximately normally distributed, the data met this assumption as shown in Table 16 to Table 16.5 (see Appendix).

The Komogrolov-Smirnov Test was used to test normally of data distribution. The result found that all of blood pressure level of both groups in three months were normal distribution with p-value more than 0.5 (p-value range for .277 to .998). (Table 19).

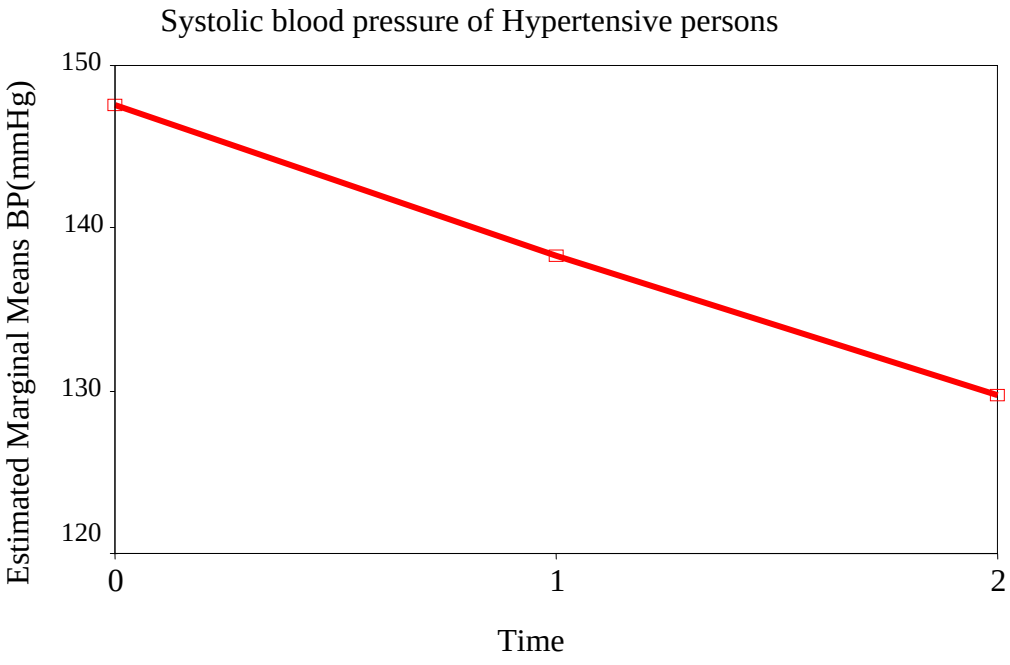
In a repeated measures design, for assumption testing of sphericity, the Mauchly's Test was used to test the null hypothesis that the error covariance matrix of the ortho-normalized transformed dependent variables were proportional to an identity matrix. The result of the test found variance matrix of the ***systolic blood pressure*** among hypertensive group was violated. It was found that the Mauchly's W was .558; Chi-Square was 12.854 with the significant at p-value of 0.002, thus the assumption of sphericity was violated. Greenhouse-Geisser correction was used, there was a significant different mean of systolic blood pressure at least one pair at time point:
$F(1.39, 31.89) = 12.08, p<.05$.

However, the result of Mauchly's Test of ***diastolic blood pressure*** among hypertensive group (x^2 (2) = 3.437; p = .179); ***systolic blood pressure*** among health care providers (x^2 (2) = 2.435; p = .296) and ***diastolic blood pressure*** among health care providers (x^2 (2) = 1.426; p = .490) were met the assumption of the test that mean the variances of the differences between all combinations of time point were equal.

Results of repeated measure of blood pressure among hypertensive persons.

1) Three times repeated measurement of diastolic blood pressure of the Person with hypertension**.**

As seen from the following the Pairwise comparisons of Bonerroni (Table 17) showed that the 1st time measurement and the 3rd time was different significantly at P-value = .001, (mean = 17.83, SD. =.3.977). Moreover, the 2nd time and the 3rd time was different significantly at P- value = 0.02, (mean = 8.65, SD. = 2.147). However, the 1st time and 2nd time was not different as showed in line graph:

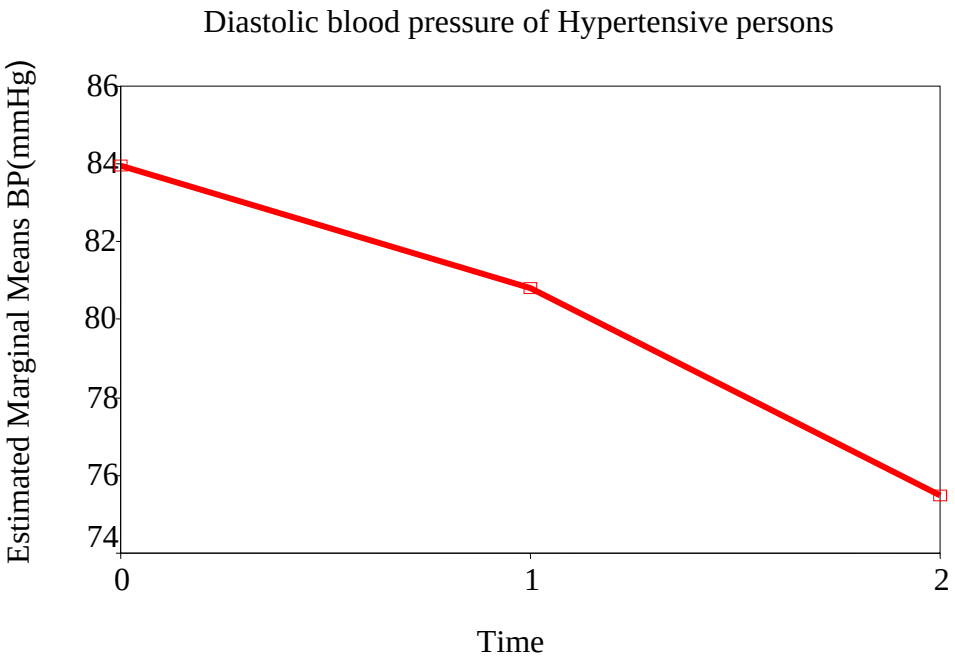


The line graph was showed the line of mean systolic blood pressure was downed from the beginning to the 1st time (0 month) and the 3rd(2 month) mean that hypertensive persons had deceased systolic blood pressure after practice SKT-2 at time point.

2) **Repeated measures of Diastolic of hypertensive persons at time 1st , 2nd, and 3rd among hypertensive persons.**

Results from the Mauchly's Test Sphericity of within-subjects effects that shown the variance was Compound Symmetry (Muchly's W = .855; df = 2; p-value = .179.), The result from Table 18 (Appendix) was showed that a significant different mean of diastolic blood pressure at least one pair at time point: F (2, 46) = 14.323,p =.000.

Hence, we further analyzed which pair was different by conducting the Pairwise comparisons of Bonerroni (Table 18). Results from the Pairwise comparisons showed that the 1st time measurement and the 3rd time was different significantly P-value = .000, (mean = 17.83, SD. =.3.977). Moreover, the 2nd time and the 3rd time was different significantly at P-value =.001, (mean = 5.33, SD. = 1.259) however, the 1st time and 2nd time was not different as followed in line graph:

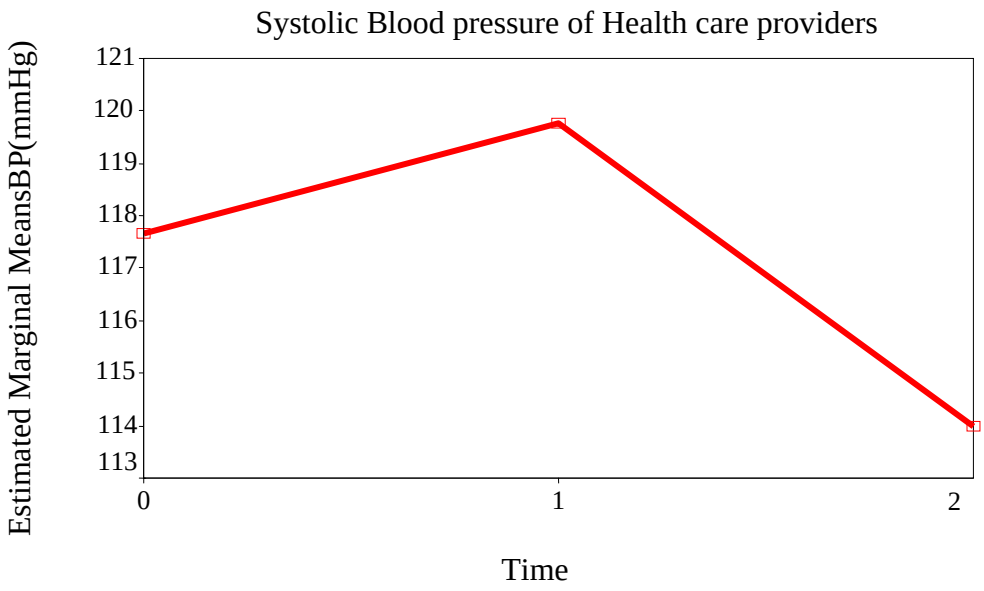


The line graph was showed the line of mean diastolic blood pressure was slightly downed from the beginning the 1st time to the 2nd time (1 month) and the line graph was downed from the 2nd time (1 month) to the 3rdmean that hypertensive persons had deceased diastolic blood pressure after practice SKT-2 at time point.

Results of repeated measure of blood pressure among health care providers.

1) Repeated measures of Systolic of health care provider at time 1st , 2nd, and 3rd.

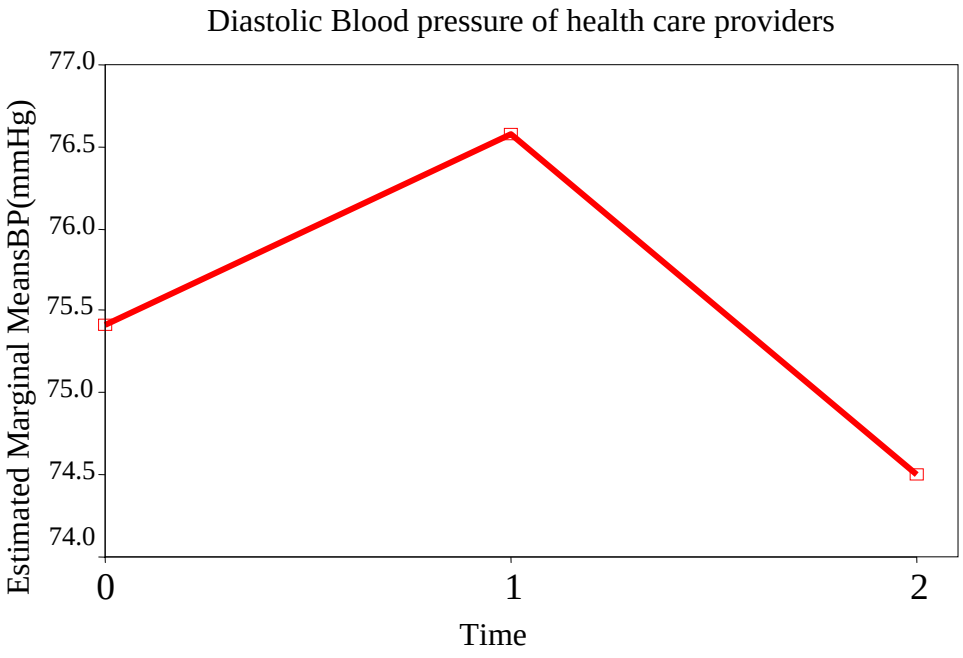
Because this variable showed that it meet the assumption test of sphericity (Muchly's W = .784; df = 2; p-value = .296). The results from Table19 (Appendix) of tests of within-subjects effects also found that there were no difference among three times of systolic blood pressure among the health care providers (F (2, 22) = 1.389,p =.270). In addition, no significant found in the test of Pairwise comparison of Bonerroni (Appendix: Table 19).



The line graph was showed the line of mean systolic blood pressure was raised up from the beginning to the 1st time to the 2nd time (1 month) then downed from 2nd time (1 month) to the 3rdtime (2 month) mean that health care providers had not difference systolic blood pressure after practice SKT-2 at time point.

2) Repeated measures of Diastolic blood pressure of health care provider at time 1st, 2nd, and 3rd among health care providers.

Results from this variable showed that it met the assumption test of sphericity (Muchly's W = .867; df = 2; p-value = .490). The results from Table20 (Appendix) of tests of within-subjects effects also found that there were no difference among three times of diastolic blood pressure among the health care providers (F (2, 22) = .281,p =.758). In addition, the results from Table20 (Appendix) no significant found in the test of Pairwise comparison of Bonerroni (P-value > .05) that there was none pair of the time of measurement as showed as line graph:

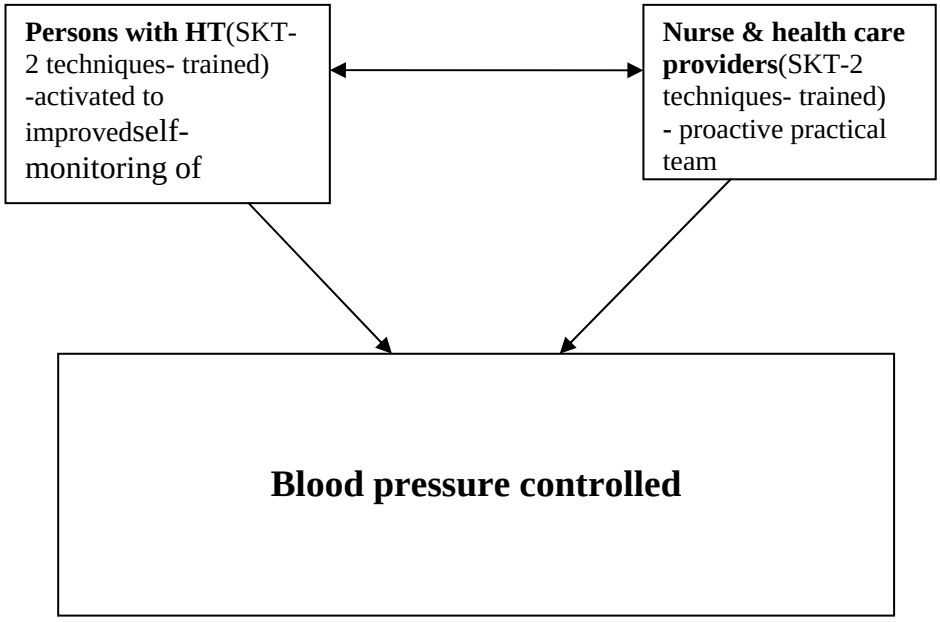


The line graph was showed the line of mean diastolic blood pressure was raised up from the beginning (the 1st time) to 2nd time (1 month) then downed from the 2nd time (1 month) to the 3rdtime (2 month) mean that health care providers had not difference diastolic blood pressure after practice SKT-2 at time point.

Relationship of the Proactive Team and Hypertensive Persons Model to Control Blood Pressure by Using SKT-2 in Community

The treatment interventions where developed by integrating the conceptual framework with the results of in depth interviews with hypertensive persons and healthcare workers. The results of the focus group with village health volunteers where used to develop a profile of the group and gain a better understanding capabilities and needs. The interviews explored factors related to barriers and facilitators to the implementation of SKT-2 technique. The conceptual framework in the context of the Chronic Care Model involves a productive interaction between the informed activated hypertensive persons and the proactive practice team.

Conceptual framework



The in depth interviews identified problems and obstacles to the practice of SKT-2techniques which can be divided into two categories.

1. Personal factors

a. Personal discipline was a significant issue as most participants reported poor compliance with the SKT-2 techniques, especially, among persons who did not practice. The participants perceived that they were unmotivated and lacked the disciple to follow through on their treatment plans.

b. Knowledge of disease and perceived severity: the participants were unaware of the severity of the hypertensive disease and lacked clear understanding of the mode of their medications.

c. Perceived advantage of SKT-2 technique. Participants failed to see the utility of performing SKT-2 techniques when they were engaging in other activities or taking appropriate medication.

d. Time limitation: Participants felt they were too busy to perform SKT techniques.

e. Physical limitation: participants reported dizziness, fatigue and body aches after practicing SKT-2 techniques which lead them to abandon the practice.

2. Teaching process

f. Communication: participants found it difficult to understand certain technical aspects of the SKT -2 techniques.

g. Instructor knowledge: participants report that instructors were unable to answer their specific questions about the practice and the instructors were unable to properly instruct the participants in certain techniques.

h. Lack self-confidence in village health volunteers, so that they are unable to properly instruct the participants and frequently need to refer to the nursing staff for answers. This can lead to loss of confidence and motivation in the participants.

i. Teaching method: some of the village health volunteers were unable to teach effectively or properly convey the meaning of the teaching to the participants.

j. Follow-up and home visits where scheduled but sometimes missed as either the instructor or the participant may not have been available to meet at the specified time.

k. Relationship between instructor and patient. Lack of trust in the instructors was a barrier to receiving knowledge

3. Teaching media like CDs and pamphlets, was not properly used by the instructors and the participants. Instead they used demonstration.

Factors that facilitate and support the practice SKT-2 techniques, that were identified during the in depth interviews include the following.

1. Perceived benefit: participants understand the benefits of SKT-2 techniques and feel encouraged to perform them.

2. Good discipline: participants are able to maintain their practice and motivate themselves by understanding that results come from consistent practice.

3. Improved health status after practice, participants report relief of physical symptoms and reduction in blood pressure or a reduction in the number administered antihypertensive medications

4. Good social support from family, friends and healthcare providers who provided encouragement and advice

5. Participants trust instructors: participants trusted their instructors advice and teaching

6. Good relationship: participants who were familiar and friendly with their instructors where easier to motivate to practice.

7. Good time management, but setting aside time for practice.

Intervention

The main outcome of the study was the development specific interventions for hypertension control. These can be divided into two categories by patient centered interventions and healthcare provider interventions.

Patient centered interventions: defined in three steps

1. Preparation: the hypertensive persons are prepared with knowledge about hypertensive disease in general and the individual blood pressure. They are also oriented to the program procedure including time of follow-ups. They are educated about the benefits and advantages of SKT-2 techniques.

2. Implementation

2.1 Training. The hypertensive persons are trained in the technique of SKT-2 techniques 2 as describes above, with specific instructions about frequency, and correct posture and breathing techniques.

2.2 Practice. The hypertensive persons are encouraged to practice. They are monitored by the village health volunteers who visited the participants weekly for 8 weeks.

3. Monitoring and Evaluation. Monthly evaluations were performed during meeting with the healthcare providers and volunteers. These evaluations provided encouragement and support and opportunities for problem solving to improve the process and outcome.

Proactive practical team centered interventions, defined in three steps

1. Preparation, with knowledge about hypertension, SKT-2 technique and methods for follow-up and monitoring the participants. The volunteers had previously received training in taking blood pressure measurements.

2. Implementation

2.1 Teaching. After the volunteers received their preparatory training, they proceeded to instruct the hypertensive persons in the practice of SKT-2 technique.

2.2 Practice. The proactive practical team was encouraged to practice SKT-2 technique also. They were monitored by themselves with record their practice every day for two months.

3. Monitoring and evaluation.

3.1 Monitoring: The volunteers performed home visits to monitor the hypertensive persons and record the frequency and proper technique of practice. They also measure the patient’s blood pressure before and after observing the hypertensive persons practice.

3.2 Evaluation: assessing problems encountered during monitoring the hypertensive persons and share the experiences of the volunteers and the hypertensive persons to refine and improve the process. The volunteers were evaluated monthly.

Implementation of SKT-2 technique intervention

Proper implementation of this intervention requires knowledge of the community in which the program will be practiced, including daily practice habits, cultural norms, municipal organization, social support structures and family structure. This will insure that the intervention in appropriate for the specific community and will be sustainable in the long run.

Also a clear understanding of the disease process and SKT-2 techniques is required for effective application of the intervention. Diligent monitoring of the progress of the intervention is needed to make sure that the intervention is being properly administered and that any deviations from the guidelines are corrected. This should be followed my evaluation of the outcomes from practice to ensure that goals are being maximized.

The results of the intervention are presented to the hypertensive persons and the team at monthly intervals for encouragement and to foster community support for the intervention.

Part 5 Proactive Team and Hypertensive Persons Model to Control Blood Pressure by Using SKT-2 in Community

The research generated the model to for blood pressure control with SKT-2 in the community setting. The model is composed of 3 interactive components, 1. a motivated , educated patient diagnosed with hypertension, 2. a proactive practical healthcare team and 3. The SKT-2 intervention to be implemented in the community setting. The Figure below illustrates the relationship of the model components to produce the desired outcome. The successful application and interaction of the 3 components of the model, as described below, results in adequate blood pressure control among hypertensive individuals.

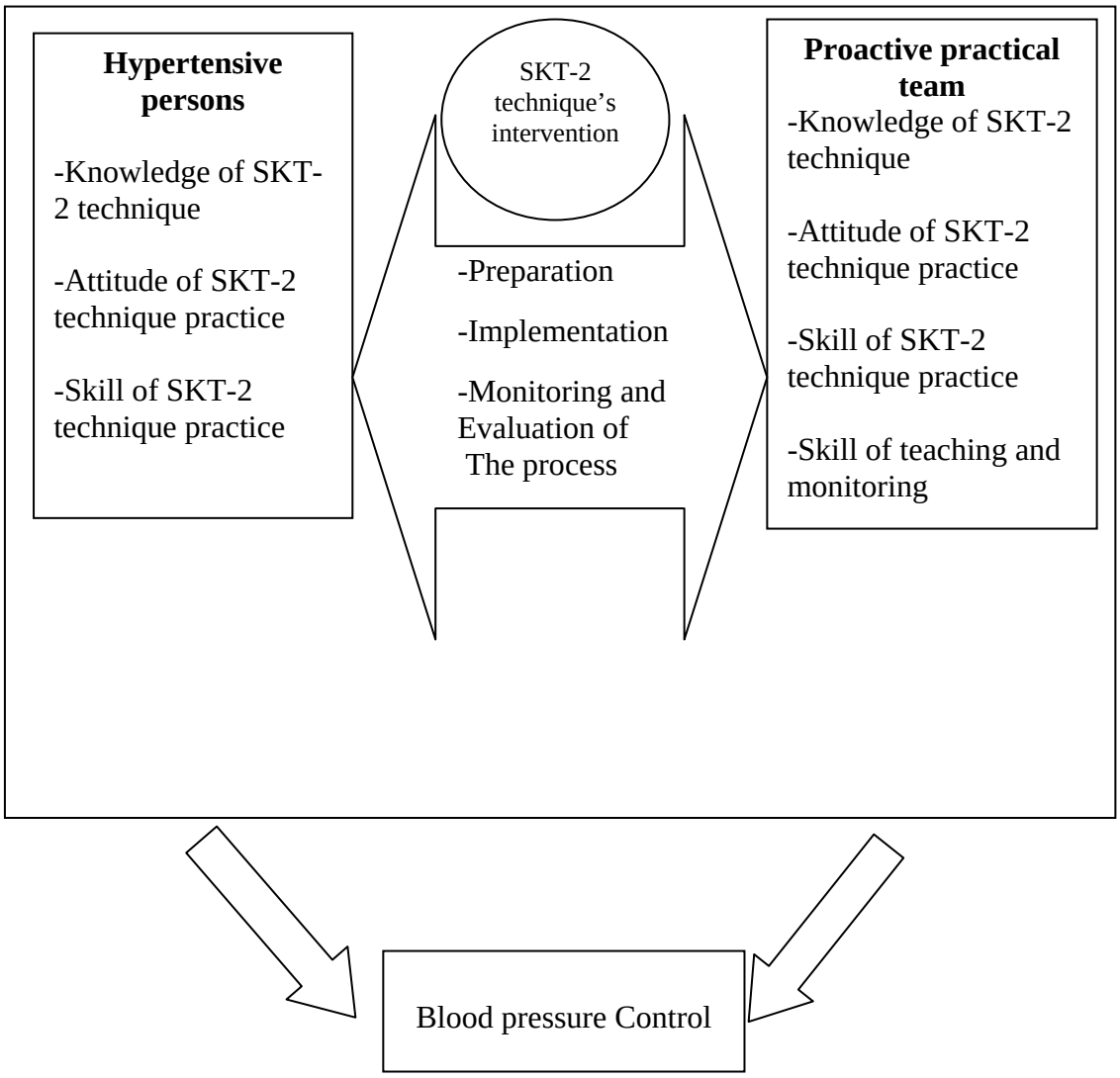


Figure 4.1 Proactive Team and Hypertensive Persons Model to Control Blood Pressure by Using SKT-2 in Community

1. Hypertensive persons

In order to promote blood pressure control with the model, hypertensive individuals should receive proper training and knowledge about the SKT-2 technique including the causes and complications of hypertensive disease, as well a basic understanding of the mechanism of action of the technique to control blood pressure. Additionally hypertensive individuals must possess the correct attitude toward technique that would motivate them to practice consistently. Individuals should

appreciate the benefit of SKT-2 practice for blood pressure control in order to maintain a positive attitude to the practice. Hypertensive persons attitude was assessed with a 13-point questionnaire which assessed their hypertensive persons perceived attitude and belief about the benefits of the technique. Analysis of the data from the in-depth interviews demonstrated the impact of intervention facilitators in improving hypertensive persons attitude to the intervention. Hypertensive persons who felt more supported and encouraged through the process, generally had a better attitude and more confidence in the practice. Finally the hypertensive individual needs to acquire the skills to practice SKT effectively to produces the desired outcome. Hypertensive persons are instructed on the precise techniques and the importance of proper application of the practice. Inconsistent or improper practice will produce sub-optimal outcomes, and hypertensive persons are made aware of the fact that prolonged practice (up to 8 weeks) is required to demonstrate results.

2. Proactive practical team

The proactive team members must have proper knowledge of SKT-2 technique and its mechanism of action in blood pressure control, in order to properly train and support the hypertensive persons. Similarly the proactive team members should possess the proper attitude and beliefs about the technique to be able to encourage and support the hypertensive persons, and build adequate trust in the hypertensive persons-clinician interaction. They should be able to instruct the hypertensive persons of the proper technique for implementing the practice. In addition the proactive team members should be proficient with a mechanism to monitor the hypertensive persons progress after the practice has been implemented.

3. Process of application of SKT-2 technique in community

3.1 Preparation

The intervention required adequate preparation of the hypertensive persons and the proactive team as described above. They should be prepared with proper knowledge and attitude about the technique and its application and benefits.

3.2 Implementation

After ensuring that the participants are adequately prepared the intervention is implemented in a systematic way with constructive interaction between the two groups. A supportive hypertensive persons-clinician interaction is ensures that the technique is properly applied and that adequate support and follow-up is available for the hypertensive persons throughout the course of the intervention. The processes of preparation and implementation are iterative as the new knowledge acquired during the intervention is incorporated into the practice though continued feedback.

3.3 Monitoring and Evaluation of process

The intervention is supported by continuous monitoring and evaluation of the intervention in order to provide feedback to the participants and guide further practice. This feedback ensures that participants are continually aware of their progress and can check to proper implementation through the trial

4. Outcome of controlling BP

The outcome of such a process is better control of blood pressure in the intervention hypertensive persons population and more effective support from the proactive team. The hypertensive persons are more motivated and prepared to perform the SKT-2 technique and have the support to implement it correctly. Similarly, the proactive team is adequately prepared and confident to be able to support the hypertensive persons. Proper knowledge of the technique and benefits of the technique ensure that proper outcomes are achieved, including adequate control of blood pressure.

Benefit of the model with using SKT-2 technique's intervention

The benefits of this new innovation in treating hypertension include effectiveness in controlling blood pressure, ease of application in all setting, low cost and no requirement for additional equipment. We introduced a new intervention for controlling blood pressure in this community where hypertension remains a significant

health issue. Kae Rai district served as a pilot location in this province that can hopefully be applied to other areas. Furthermore, healthcare providers can use SKT-2 alongside their other routine interventions such as health education, home visits and health education.

Limitations of the model with using SKT-2 technique's intervention

Hypertensive persons with physical limitations such as joint disorders, lung disease or other limiting diseases may not be able perform these techniques.

CHAPTER V
DISCUSSION

This mixed-method study was conducted, 1. to explore the barriers and facilitators factors of using SKT technique to control blood pressure in community, and 2. to develop appropriate intervention for improving blood pressure control in community for persons with hypertension at Khaerai District Health Promotion Hospital. The sample composed of twogroup; group one was 24 persons with hypertension who came for follow up visit at outpatient department Kaerai district health promotion hospital and group two was twelve health care providers.

This chapter presents a discussion and comparison of the conceptual framework of the study. It is presented in two parts. First a descriptions of the sample which includesdiscussion of differences in knowledge of SKT technique, attitude of SKT technique (before and after intervention), and blood pressure level at three point of time. Secondly, I will presentproblems and obstacles to the practice of SKT-2 techniques and the factors that facilitate and support the practice SKT-2 techniques.

Part 1 Descriptions of the sample

Knowledge of SKT technique

Both groups of participants were testedabout knowledge of SKT technique and attitude to SKT technique (before and after intervention). Blood pressure level at three point of time (1st time; 2nd time and 3rd) also were tested and compared.

Tables 12 and 13 in Chapter 4 demonstrate no significant difference in knowledge or attitudes on SKT2 practice before and after the practice among

hypertensive patients and health care providers. This factmay be implicated by the evidence that most of the patients were elder, their ages ranged from 35 to 77 years old with a mean of 64.0 years old (S.D.= 9.5). Also the majority of participants finished primary school (70.8%) but had no further formal education. During data collection, many participants required assistance in reading the questionnaire forms and had difficulty understanding the content of the forms and the instructions on how to practice SKT2. Many participants were unfamiliar with the terminology, even after the researcher took time to explain certain aspects. Clearly, it is important that participants are able to understand the instructions to be able to practice correctly and obtain the benefit of improved blood pressure after practicing. According to Suwan (1983), different educational levels of patientsresult in different degrees of medication adherence. More well–educated people had better knowledge and attitude concerning health activities. Therefore, good knowledge of the patients could lead to better health care, practice and better knowledge of their disease. Research by Kompayah (1989) showed that knowledge of hypertension by subjects would enable them to have better belief systems about their health. Ninyoo (1999) found that knowledge given in the health education program to the patients led to better knowledge of severity, risks, and determination in preventing the hypertension. This resulted in significant improvement in participants measured blood pressure level after the health education program. The study by Tanopas (1996) found that application of self-efficacy theory and social support through health education lead to better self-efficacy and practices bythe patients. The study by Kijjachanchaikul (1999) found that the subjects suffering from essential hypertension had better knowledge, better perception of self-ability and expectation after they participated in the health education program based on the self-efficacy theory. Channimit (1995) found that knowledge of the hypertension was related to a statistically significant improvement of self-care behavior amoung persons with hypertension.

Thus, it can be surmised from the relevant literature that persons with hypertension who have good knowledge are more likely to also have good practices in regards to controlling their blood pressure and this can certainly be extrapolated to SKT technique practice. It is important, therefore, to adequately clarify the contents of

questionnaire for the participants. This is especially important for the more technically difficult or complicated aspects of the practice.

Moreover, among heath care providers, eight of them were village health care so they had limitation of understanding medical terminology (only 33.33% of them were academic staff and public health officers).The result of measured knowledge of SKT technique was not change. The notice about contents of questionnaire should not be overlook.

Attitude of SKT technique

The attitude of SKT technique showed that had not difference between baseline and after program in person with hypertension (t=.699, P>0.05) and health care provider (t=.409, P>0.05). These statistics demonstrate that one cannot assume a change in these parameters after practicing SKT-2 technique. Additionally the methods and materials used to measure the parameters may not have been appropriate for this population, as it may have overlooked aspects specific to their context.

However, the qualitative analysis did demonstrate a positive attitude among participants with a more consistent practice, as reported by these two example cases:

Case24.” After practice I felt in good health and wanted to continue practicing.”

Case12.” Medical doctor told me that SKT-2 is suitable for hypertension because after practice my blood pressure level was reduced. I want to teach my daughter to practicing.”

From the result of this study of both parts: qualitative and quantitative that is the strengthen of this study that help researcher had clearer view and had more dimension to make decision about the result.

Blood pressure level

The comparison of the blood pressure level at time-1 (baseline); time-2 (the fourth week) and the end of study at time-3(the eighth week) were tested (Table 12 to Table 14).The result found that only persons with hypertension had blood pressure level change when re-measure in three points at time, especially, the both systolic and diastolic blood pressure at beginning time and time-3 was decreasing (p-value =.001)and at time-2 compared with time-3 (p-value =.002). However, blood pressure of health care providers had not different. This point could indicate that persons who consistently practice SKT technique are able to reduce their blood pressure. The supportive result from in-depth interview (Table15) found that there were 17 persons who were able to reduce their blood pressure level after practicing SKT-2 for three- months but the rest, 7 persons, maintained stable blood pressure levels. Most of participants (18 persons) reported that they practiced SKT-2 technique, although 6 persons did not practice the technique as following:

Case24"after practiced village health volunteer tell me that my blood pressure level is reduced from 140 to 120/80."

Case2:"when I going to visit medical doctor, he told me that my blood pressure level is better than previous time, now it is 120"

On the other hand, blood pressure level of health care providers had not change in three point of the time because most of them did not have blood pressure problems (Table 18).

Case11."I have not any blood pressure problem; I do not practice SKT-2."

Case4." I have not any blood pressure problem; I practice SKT-2 as 3-4 times per week."

In this part of blood pressure level, the result of qualitative and quantitative went in one direction after SKT-2 practice. According to the study of Krachandan (1997), studied about Effectiveness of Anapanassti Relaxation on Reduction of Stress and Blood pressure Among Essential Hypertension. The result was showed, after 8 weeks of Anapanassti Relaxation, systolic and diastolic blood pressure were reduce

with significantly at p<.001.Semilary to the study of Pirasorn (1998) studied about the effect of qigong relaxation training on stress and blood pressure in essential hypertensive patients and found that after received trained of qigong relaxation in 3 month, systolic and diastolic blood pressure were reduce (18.15/10.4mmHg;p-value<.001).

With the knowledge, attitude and blood pressure level variables researched, the researcher found that only blood pressure level had change after participated intervention, while knowledge and attitude were not change. The conclusion could be drawn that blood pressure levelcould be change after continue practice SKT-2 technique for eight weeks. However, the differences emerged, possibly, thanks to limitations of the study. That is, the subjects were unique in small districts. More research was needed to get adequate data to explain SKT technique practice.

Part 2 Problems and obstacles to the practice of SKT 2 techniques and the factors that facilitate and support the practice SKT techniques

In this part, qualitative result, was discussed about problems and obstacles to the practice of SKT-2 techniques and the factors that facilitate and support the practice SKT techniques among both group of participants.

A. Problems and obstacles to the practice of SKT-2 techniques

The result of in-depth interview, shown the problem and obstacles to practice of SKT-2, was divided into two categoriesshown as following:

1. Personal factors

2. Personal discipline was a significant issue as most participants reported poor compliance with the SKT-2 techniques, especially, among persons who did not practice. The participants perceived that they were unmotivated and lacked the disciple to follow through on their treatment plans as following:

Case 5 “I am lazy, I don’t practice even my sister and mother remind me to do.”

Case 17 “If time have free time, I will do.Although, health care providers visit me but I told her I did not do.”

This point is dependant on individual perception and personal attitudesabout SKT-2 techniques and the perceived benefit to them. According to the study by Suwan (1983),well–educated people had right knowledge and attitude concerning health activities. Therefore, good knowledge of the patients could lead to better health care, practice and better knowledge of disease. The study by Kijjachanchaikul (1999) found that the subjects suffering from the essential hypertension had better knowledge, better perception of self-ability and expectation after they participated in the health education program which based on the self-efficacy theory.

a. Knowledge of disease and perceived severity: the participants were unaware of the severity of the hypertensive disease and lacked clear understanding of the mode of their medications. For example as following:

Case 7 “My blood pressure is not high. I continue to takes medicine so I do not fear complication of hypertension. I think hypertension is not serious disease.”

Case 14 “I am not fear about any complication of hypertension. I am still have healthy.”

This point conclude that when persons perceive severity of disease they have trend to practice good behavioral. According to the study an application of the protection motivation against complications of essential hypertension patients in Pramongkutklao hospital by Kanjanapibul (2000), it was foundthat after implementing the program, the experiment group had a significant increase in perceived severity of and perceived vulnerability to hypertensive complication, perceived self-efficacy of and perceived response efficacy of preventive behaviors in preventing complications and preventive behaviors against hypertension complications. The ratio of the number of patients whose blood pressure level was decreased was significantly higher statistically than those of the comparison group (p-value .05). In addition, the studies of Wisessatorn (2001) that studied the result of participating in appreciation influence control by apply the health belief model in prevention of complications of essential

hypertension at Parkpanang hospital, Nakhornsritammarat province. The result revealed that after the experimental group participated in the program, the member had significantly higher health beliefs and performance toward prevention of complications of essential hypertension than before (P-value<0.001).

b. Perceived advantage of SKT-2 technique. Participants failed to see the utility of performing SKT-2 technique. When they were engaging in other activities or taking appropriate medication.

Case19 “I do not practice because I always exercise.”

Case5 “I do not practice because I continue to take medicine.”

Case7 “I continue to take medicine, why I have to do this technique?”

Persons, who perceive benefit of SKT-2 technique more than perceive obstacle of SKT-2 technique they have trend to continuous practice SKT-2 technique.

c. Time limitation: Participants felt they were too busy to perform SKT-2 technique.

Case 1HC “I have work with limited time and have many things to do”.

Case 2HC “I am very busy except morning time”.

The limitation of time is one of reason that was always use when they did want to do any things, justification, this problem was solved by manage time to practice such as in case who have good discipline they could set suitable time to practice. For examples following:

Case 1 “Tell customer to waiting when I practicing”

Case 2 “I am very busy so I set to practice in the early morning”

d. Physical limitation: participants reported dizziness, fatigue and body aches after practicing SKT which lead them to abandon the practice.

Case 8 “I have pain and ache my arms; shoulders; I can do 2 times then I quit”.

Case 21 “This technique makes me pain and aches shoulders and feel dizzy and vertigo”.

When starting to practice SKT-2 techniques all most of practitioner have feel aches and pain of body. However, keeping continuing practice for one week the condition would be gone. On the other hand, person would be discouraged then quit to practice if they misunderstood SKT-2 concept and process of body change after practice. To solving this problem, health care providers should be not looking over then should support those persons with corrected knowledge of SKT-2 technique before they quit.

3. Teaching process

a. Communication: participants found it difficult to understand certain technical aspects of the SKT techniques.

b. Instructor knowledge: participants report that instructors were unable to answer their specific questions about the practice and the instructors were unable to properly instruct the participants in certain techniques.

Case 9HC “My patients that I take care ask me about SKT-2 technique, I can’t answer them.”

c. Lack self-confidence in village health volunteers, so that they are unable to properly instruct the participants and frequently need to refer to the nursing staff for answers. This can lead to loss of confidence and motivation in the participants.

Case 8HC “Even I continuous practice but I still not have self confidence”

d. Teaching method: some of the village health volunteers were unable to teach effectively or properly convey the meaning of the teaching to the participants.

e. Follow-up and home visits where scheduled but sometimes missed as either the instructor or the participant may not have been available to meet at the specified time.

Case 8HC “I cannot make appointment with him because he will go somewhere when I visiting.”

Case 6HC “My problem is I cannot meet her, so her lose my follow up.”

f. Relationship between instructor and patient. Lack of trust in the instructors was a barrier to receiving knowledge.

Case 8HC: “I have just start be a village health volunteer so my patient still not familiar to me.”

For all of items a. to items f.was corrected when role instructor had monthly meeting with health care provider’s team such as setting time to add up or refresh knowledge of SKT technique; skill of teaching; skill of monitoring and communication. Moreover, the proactive team of this sector had created handbook of follow up persons with hypertension for help them. The result of the third month of intervention from the in-depth interview found that role instructors had gain their self-confidence such as this case of Health care provider number 8 stated as below:

Case 8HC “I have to continuous practice to improve self confidence when I teaching the patients.”

Case 9HC “I have more self-confidence to teach after practice for one-month.”

g. Teaching media like CDs and pamphlets was not properly used by the instructors and the participants. Instead they used visual demonstration.

Case 24HC “I always demonstrate SKT-2 technique when I teaching.”

Case 6HC “I demonstrate to them and ask them return- demonstrate to me”

About CDs some of participants reflected that they could not properly used because they had not CDs player. However, for pamphlets, also had problem to use because almost of participant were elderly, they have limited to read but they just got benefit from those media with saw only picture. The conclusion from one membership of health care team about media in monthly meeting suggested that they should create flipping chart with bigger size of picture and fonts inside that chart.

B. Factors that facilitate and support the practice SKT techniques, that were identified during the in depth interviews include the following.

1. Perceived benefit: participants understand the benefits of SKT -2techniques and feel encouraged to perform them.

Case 2 “Medical doctor tell me that my blood pressure level was reduced, after I practiced SKT-2.”

Case 23 “Health care provider tell that SKT-2 helps me to controlling BP”

Case 12HC “SKT-2 good for health if continuing to practice.”

Persons, who perceive benefit of SKT-2 technique more than perceive obstacle of SKT-2 technique they have trend to continuous practice SKT-2 technique.

2. Good discipline: participants are able to maintain their practice and motivate themselves by understanding that results come from consistent practice.

Case 11HC “Discipline depend on each personal perceive; who do who will get.”

Case 3HC “I have discipline to practice because I’m role instructor”

Case 8HC “I should have discipline that helps improve self confident when teaching.”

Case 4 “Discipline depend on each personal perceive; who do who will get.”

Case 1 “Concern and remind myself about the time practiced”

The best practitioner who receive the award from health care team, he had good discipline to practice SKT-2 technique and his blood pressure reduced from 134/71 mmHg to 123/74 mmHg in period of three month (Table17).

3. Improved health status after practice, participants report relief of physical symptoms and reduction in blood pressure or a reduction in the number administered antihypertensive medications

Case 22 “I fells relax and my aches; pain is relieved”

Case 15 “After practiced my pain and aches arms; shoulderswas relieved.”

Case 21 “My dizzy was gone after practice.”

The result from Table19 was support this point when the participants continuing practice SKT-2 technique for eight weeks. According to the result of comparison blood pressure level at three point time with significantly difference mean

of blood pressure when comparing in three pints of time (p-value<.001) as shown in Table11 and 12.Those result supported the concept of SKT-2 technique that need practical time at least 8 weeks to controlling blood pressure. This evidence support that SKT-2 technique is help persons with hypertension controlled their blood pressure.

4. Good social support from family, friends and healthcare providers who provided encouragement and advice.

Case 21“Health care provider and children my compliment me about practicing”

Case 2 “Medical doctor told my Blood Pressure was reduced the complimented me.”

Social support is mostly importance factor to supporting persons practice SKT-2 technique because in prior of practical time almost of practitioner had body pain and ache if they did not understand in this process they would quit to do (table16 to 20).

5. Participants trust instructors: participants trusted their instructor’s advice and teaching.

Case 2 “Medical doctor tell me that my blood pressure level was reduced, after I practiced SKT-2.”

Case 23 “Health care provider tell that SKT-2 helps me to controlling BP”

6. Good relationship: participants who were familiar and friendly with their instructors where easier to motivate to practice.

Case 13 “I kreang-jai because she frequency come to visit me, I design to practice.”

Case 9 “I feels warmly that she frequency come to see me”

Two items of participants trust instructors and good relationship between them, that more helpful to practice SKT-2 technique that shown in this Table 19 and

20. Good relationshipled to good trust and convenience for discuss any problem during practice time.

7. Good time management, but setting aside time for practice.

Case 1 “Tell customer to waiting when I practicing”

Case 2 “I am very busy so I set to practice in the early morning”

Case 3 “I Start practice when cooking rice”

Case 6HC “I am too busy so I set time to practice in morning and bedtime”

Case 9HC “have many things to do all day so I practice in bedtime”

Good time management improving the continued practice among group participants who had also good discipline (Table19 to 20). Moreover, the limited of time to practice was solved with this good time management.

In summary, there are many factors related to controlling blood pressure with using SKT-2 technique.Different results might be due to different backgrounds of the subjects and other contexts. There were many factors relatedto individual behavior, and no single factor can be considered in isolation. Therefore, thefew findings in this study are not sufficient to explain all of individuals’ behavior to practice SKT-2 and further research will be required to get adequate data to draw clear conclusions.

From the present study and other relevant researches, it can be concluded that, controlling blood pressure with using SKT-2 technique which was one of structural method was relevant to control blood pressure; in this context.

Model Development

In order to manage chronic diseases and their wide reaching community effects it was necessary to focus of a team-based approach to care that involved both healthcare workers and patients from the community being served. The Model for

Control of Blood Pressure with SKT-2 in the Community was developed through a framework of the Chronic Care Model, which has been shown to improve patient outcomes (Wagner et al, 1998) and improve sustainability of the intervention in the community. By incorporating the six components of the Chronic Care Model, health care organization, self-management support, delivery system design, decision support, community involvement and information system management, the study was able to improve blood pressure levels in the target community. The Model involved greater patient awareness and participation in the case of self-management support by the critically enabled proactive practical team, composed of community based health care volunteers. The model facilitated the decision support process through routine home visits and frequent follow-up and support to provide practice guidance and intervention feedback during the intervention period. The Model also integrated community government organizations at all levels to ensure adequate support and oversight.

The model was generated from a combination of application of the CCM framework and feedback from three interactive components, the proactive practical team, the hypertensive persons and the implemented SKT-2 intervention. By using in-depth interviews and focused group discussions researcher was able to determine key facilitators and barriers to successful implementation of SKT-2 techniques in the community to control blood pressure. These processes were able to assess participant knowledge, attitudes and skill levels for the intervention to ensure that they were properly prepared prior to implementation. They also provided the means to effectively monitor and evaluate the process and provide ongoing feedback to the participants. Thus the interaction of the hypertensive persons, the proactive team and the intervention was able to produce the desired outcome of improved blood pressure control in the community. The proactive practical team, composed of village health volunteers, was a critical component of the intervention model. These individuals were selected from the community, which they served to ensure that they had an appropriate context to deal with questions and problems that may arrive in a sensitive manner. They here also well trained in the mechanism and complication of the disease and in the practice of the SKT-2 intervention for controlling blood pressure. The team members where given adequate preparation to evaluate and provide effective

follow up to ensure the best outcome, through routine and frequent home visits and participant feedback. The proactive team was thus a crucial intermediary between the healthcare system and the patients.

The benefits of such a model cannot be understated. Firstly, participant involvement ensures the desired outcome was achieved, in this case, improved blood pressure control, by using responsible community healthcare workers and engaged committed patients. Secondly, adequate preparation of all participants, through knowledge assessment and appropriate education, ensures the best possible outcome. This is further facilitated by the evaluation and monitoring process, through which additional feedback is provided at all levels of the intervention.

An important advantage of the model is its applicability to other chronic debilitating conditions and other healthcare settings. A clear case of this was demonstrated in the our pilot study, in which the community nurses were able to extrapolate the model to their diabetes mellitus patients in the Kaerai community using the already established program. Similarly, one could envision similar extrapolation to other communities and other chronic conditions such as chronic renal failure, HIV and heart disease.

Finally, the model could be advantageous at a policy level where, the Ministry of Public Health could develop health care intervention models with different interventions, for a variety of medical conditions that could be applied across the entire community spectrum and yet still be appropriately suited for individual communities. In this way healthcare outcomes could be improved while maintaining cost effectiveness.

CHATER VI
CONCLUSION

The conclusion of this study is presented as follows: summary of the study, recommendations for application and future study and limitation of the study.

Summary of the study

This mixed-method study was conducted 1.)To explore the barriers and facilitators factors of using SKT -2 technique to control blood pressure in community. 2.) To develop appropriate intervention for improving blood pressure control in community for persons with hypertension at Kae rai District Health Promotion Hospital. A sample composed of two- group; group one was 24 persons with hypertension who came for follow up visit at outpatient department Kaerai district health promotion hospital and group two was twelve health care providers.

The process of this study conducted to make sure that persons with hypertension could control their blood pressure by using SKT -2 technique with support from nurse and health care provider. The approaches and process would be divided into three steps.

Step 1: This process starts with in-depth interview two groups of participant to explore factors related to barriers and facilitators of using SKT-2 technique to control blood pressure.

Step 2: Prepare and set proactive practice team and guidelines combine with the results of exploring barriers and facilitators of using SKT-2 technique to control blood pressure with integrate to focus group process. Then, developed

interventions for blood pressure control to improve self-monitoring on blood pressure controlled for hypertensive persons.

Step 3: Implementation, this process is controlled blood pressure will check from blood pressure level, knowledge about SKT-technique by using quantitative method: experimental quasi (pre-posttest in two months).

This chapter presents conclusion of this study. They were presented in three parts as followings: 1) descriptions of the sample which include the difference of knowledge of SKT technique; attitude of SKT-2 technique (before and after intervention), and blood pressure level at three point of time. 2) problems and obstacles to the practice of SKT-2 techniques and the factors that facilitate and support the practice SKT-2 techniques. 3) Model developing.

Part 1 Descriptions of the sample

Knowledge of SKT technique

Both groups of participants were tested the difference of knowledge of SKT technique and attitude of SKT technique (before and after intervention). Blood pressure level at three point of time (1^{st} time; 2^{nd} time and 3^{rd}) also were tested the difference. The Table 8; 9 indicated that both groups of participant (persons with hypertension and health care providers) had not different knowledge and attitude of SKT technique when re-measured at twice. It means as after and before participated in program their knowledge and attitude did not change. The Table 8; 9 indicated that both groups of participant (persons with hypertension and health care providers) had not different knowledge and attitude of SKT technique when re-measured at twice.

Attitude of SKT technique

The attitude of SKT technique showed that had not difference between baseline and after program in person with hypertension ($t=.699$, $P>0.05$) and health

care provider (t=.409, P>0.05). Those statistics value showed, could not assume that participants were gain their attitude after practice SKT-2 technique because the statistics had shown in part of qualitative was quite difference from mean comparison statistics test, especially among group of consistency to practice SKT-2 technique was showed that they had good attitude.

Blood pressure level

The comparison of the blood pressure level at time-1 (baseline); time-2 (the fourth week) and the end of study at time-3(the eighth week) were tested (Table 12 to Table 14). The result found that only persons with hypertension had blood pressure level change when re-measure in three points at time, especially, the both systolic and diastolic blood pressure at beginning time and time-3 was decreasing (p-value =.001)and at time-2 compared with time-3 (p-value =.002). However, blood pressure of health care providers had not different.

Part 2 Problems and obstacles to the practice of SKT -2 techniques and the factors that facilitate and support the practice SKT-2 techniques

In this part, qualitative result, was discussed about problems and obstacles to the practice of SKT-2 techniques and the factors that facilitate and support the practice SKT techniques among both group of participants.

A. Problems and obstacles to the practice of SKT-2 techniques

1. Personal factors

a. Personal discipline was a significant issue as most participants reported poor compliance with the SKT-2 techniques, especially, among persons who did not practice. The participants perceived that they were unmotivated and lacked the disciple to follow through on their treatment plans.

b. Knowledge of disease and perceived severity: the participants were unaware of the severity of the hypertensive disease and lacked clear understanding of the mode of their medications.

c. Perceived advantage of SKT-2 technique. Participants failed to see the utility of performing SKT-2 techniques when they were engaging in other activities or taking appropriate medication.

d. Time limitation: Participants felt they were too busy to perform SKT techniques.

e. Physical limitation: participants reported dizziness, fatigue and body aches after practicing SKT-2 techniques which lead them to abandon the practice.

2. Teaching process

a. Communication: participants found it difficult to understand certain technical aspects of the SKT -2 techniques.

b. Instructor knowledge: participants report that instructors were unable to answer their specific questions about the practice and the instructors were unable to properly instruct the participants in certain techniques.

c. Lack self-confidence in village health volunteers, so that they are unable to properly instruct the participants and frequently need to refer to the nursing staff for answers. This can lead to loss of confidence and motivation in the participants.

d. Teaching method: some of the village health volunteers were unable to teach effectively or properly convey the meaning of the teaching to the participants.

e. Follow-up and home visits where scheduled but sometimes missed as either the instructor or the participant may not have been available to meet at the specified time.

f. Relationship between instructor and patient. Lack of trust in the instructors was a barrier to receiving knowledge

g. Teaching media like CDs and pamphlets, was not properly used by the instructors and the participants. Instead they used visual demonstration.

Factors that facilitate and support the practice SKT-2 techniques, that were identified during the in depth interviews include the following.

1. Perceived benefit: participants understand the benefits of SKT-2 techniques and feel encouraged to perform them.

2. Good discipline: participants are able to maintain their practice and motivate themselves by understanding that results come from consistent practice.

3. Improved health status after practice, participants report relief of physical symptoms and reduction in blood pressure or a reduction in the number administered antihypertensive medications

4. Good social support from family, friends and healthcare providers who provided encouragement and advice

5. Participants trust instructors: participants trusted their instructors advice and teaching

6. Good relationship: participants who were familiar and friendly with their instructors where easier to motivate to practice.

7. Good time management, but setting aside time for practice.

Part 3 Model developing

The main outcome of the study was the development specific interventions for hypertension control. These were divided into two categories by patient centered interventions and healthcare provider interventions.

Patient centered interventions: defined in three steps

1. Preparation: the patients are prepared with knowledge about hypertensive disease in general and the individual blood pressure. They are also oriented to the program procedure including time of follow-ups. They are educated about the benefits and advantages of SKT techniques.

2. Training. The patients are trained in the technique of SKT-2 techniques 2 as describes above, with specific instructions about frequency, and correct posture and breathing techniques.

3. Practice. The patients are encouraged to practice. They are monitored by the village health volunteers who visited the participants weekly for 8 weeks.

4. Evaluation. Monthly evaluations were performed during meeting with the healthcare providers and volunteers. These evaluations provided encouragement and support and opportunities for problem solving to improve the process and outcome.

Healthcare worker centered interventions, defined in three steps

1. Preparation, with knowledge about hypertension, SKT-2 technique and methods for follow-up and monitoring the participants. The volunteers had previously received training in taking blood pressure measurements.

2. Teaching. After the volunteers received their preparatory training, they proceeded to instruct the patients in the practice of SKT-2 technique.

3. Monitoring. The volunteers performed home visits to monitor the patients and record the frequency and proper technique of practice. They also measure the patient's blood pressure before and after observing the patients practice.

4. Evaluation: assessing problems encountered during monitoring the patients and share the experiences of the volunteers and the patients to refine and improve the process. The volunteers were evaluated monthly.

Implementation of intervention

Proper implementation of this intervention requires knowledge of the community in which the program will be practiced, including daily practice habits, cultural norms, municipal organization, social support structures and family structure. This will insure that the intervention in appropriate for the specific community and will be sustainable in the long run.

Also a clear understanding of the disease process and SKT techniques is required for effective application of the intervention. Diligent monitoring of the progress of the intervention is needed to make sure that the intervention is being

properly administered and that any deviations from the guidelines are corrected. This should be followed my evaluation of the outcomes from practice to ensure that goals are being maximized.

The results of the intervention are presented to the patients and the team at monthly intervals for encouragement and to foster community support for the intervention.

Benefit of Intervention

The benefits of this new innovation in treating hypertension include effectiveness in controlling blood pressure, ease of application in all setting, low cost and no requirement for additional equipment. We introduced a new intervention for controlling blood pressure in this community where hypertension remains a significant health issue. Kae rai district served as a pilot location in this province that can hopefully be applied to other areas. Furthermore, healthcare providers can use SKT alongside their other routine interventions such as health education, home visits and health education.

Limitations of intervention

Patients with physical limitations such as joint disorders, lung disease or other limiting diseases may not be able perform these techniques.

Problems and Obstacles

The following are problems encountered during the performance of the research project.

1. The intervention requires a significant degree of motivation from the participants, which was difficult to instill among some of the hypertensive patients. In the absence of such motivation the patients lacked focus and were unable to acquire the knowledge to practice effectively and would not achieve established goals.

2. In other cases, patients where unable to maintain intervention appointments due to prior commitments such as family and work responsibilities. In addition, many of the patients participated in a concurrent community survey on drug addiction, which limited their participation in the current trial.

3. A significant obstacle for the intervention was that elderly status and resulting debility of most of the study participants. The patients require family support and accompaniment to meet intervention requirements such as appointments and meetings at the District Health Promoting Hospital. Such support was not always available, thus limiting their attendance and compliance.

Recommendation for Practice Application

1. Health care providers should be encouraged to give knowledge to people in a systematic way about, SKT-2 technique and hypertension.

2. The present study can be applied to healing conditional for the patients having other chronic diseases in place that appropriate active health care team.

Limitations of the Study

1. The study may have limitations in generalization as the data are acquired from purposive sample and from one community hospital.

2. Prior to applied this study the participants have to train SKT Technique.

Recommendations

1. Policy Planning

a. In addressing the widespread problem of hypertension the Ministry of Public Health should establish a policy of collaborative models between communities and district health promotion hospitals or local health care units. This Model to Control Blood Pressure with SKT-2 in the Community was successfully piloted in Kea Rai and should serve as an example for the implementation of other such community based programs facilitated by proactive practical teams.

b. The Model to Control Blood Pressure with SKT-2 in the Community should be implemented as a component of health education programs to local hospitals and healthcare units. This educational outreach should be encouraged during outpatient clinic visits or other appropriate clinical encounters with physicians and other healthcare workers. Additionally it can be applied as a component of healthcare worker home visits to hypertensive persons.

c. The Model to Control Blood Pressure with SKT-2 in the Community should be included in the practice and training guidelines for community nurses and healthcare workers involved in the care of hypertensive persons.

d. To ensure long term sustainability and community uptake of the intervention, the district health promotion hospital should develop a policy to include the Model for Blood Pressure Control with SKT-2 in the Community in training for nurses, other healthcare providers, community leaders and other influential community stakeholders.

2. Nursing Practice

a. The Model to Control Blood Pressure with SKT-2 in the Community will provide a guideline to support public health nurses in their efforts to control blood pressure and reduce the complications of hypertension among hypertensive persons.

b. The Model to Control Blood Pressure with SKT-2 in the Community provides concise guidelines for community nurses and health village volunteers for practice and education in SKT-2 techniques and blood pressure monitoring to improve blood pressure outcomes in hypertensive persons.

c. Public health nurses can apply the model to develop community programs for other chronic diseases that affect the community.

d. The Model to Control Blood Pressure with SKT-2 in the Community should be applied to other communities in a similar context to control hypertension and its complications and other chronic diseases affecting community health.

3. Nursing Education

a. Nursing education institutions should be encouraged to integrate course work related to mind and body therapies and other alternative health practices as treatment and preventive interventions for hypertension and other chronic diseases. This would facilitate health and economic goals of the Ministry of Public Health.

b. Public health nursing research should be geared more to examining effective mind and body therapies and other alternative practices, to add to the knowledge base on public health nursing and effective community health intervention.

Future Research

1. Future study of the Model to Control Blood Pressure with SKT-2 in the Community should focus on testing in larger and more representative cohorts and with longer follow-up periods in order to better establish the sustainability of the model in communities.

2. The Model to Control Blood Pressure with SKT-2 in the Community should be implemented in trials including healthy and hypertensive patients in order to better guide future model developments and adjustments.

3. A controlled trial of the Model to Control Blood Pressure with SKT-2 in the Community in the appropriate setting would provide further data on its suitability for the community model and allow for more specific customization of future models in different contexts.

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APPENDICES

APPENDIX A : Research Instruments

แบบประเมินและแบบสอบถามการดำเนินการวิจัยระยะที่ 1 (สำหรับผู้ป่วยความดันโลหิตสูง)

คำชี้แจง แบบประเมินการนำเข้า

ผู้ป่วยความดันโลหิตสูงที่เข้าร่วมการวิจัยจะตอบแบบประเมิน 2 ส่วน ประกอบไปด้วย

ส่วนที่ 1 แบบสอบถามผู้เข้าร่วมการวิจัย

1.1 ข้อมูลทั่วไป

1.2 การรับรู้การปฏิบัติสมาธิเพื่อการเยียวยา การรับรู้องค์ความรู้ การรับรู้ผลดี และการรับรู้ความเสี่ยง

ส่วนที่ 2 แบบประเมินและแบบสอบถาม ความรู้ เจตคติ การปฏิบัติสมาธิเพื่อการเยียวยา

2.1 แบบประเมินความรู้เรื่อง การปฏิบัติสมาธิเพื่อการเยียวยา

2.2 แบบวัดทัศนคติต่อ การปฏิบัติสมาธิเพื่อการเยียวยา

แบบสัมภาษณ์ผู้ป่วยความดันโลหิตสูง

No._____

วัน/เดือน/ปี ที่เก็บข้อมูล…….

<u>คำแนะนำ</u> โปรดทำเครื่องหมาย ✓ หรือ × ทับตัวเลขที่ท่านต้องการตอบ และกรุณาเติมข้อความลงในช่องว่าง อย่างครบถ้วน

ส่วนที่ 1.1 ข้อมูลทั่วไปของผู้ป่วย

H.N…….. สำหรับผู้วิจัย

1. เพศ 1)ชาย 2)หญิง ()sex

2. อายุ…….ปี (จำนวนปีเต็ม) ()()age

3. จบการศึกษาระดับ ()edu

……..

4. อาชีพของท่าน ()ocu

.....

.....

ส่วนที่ 1.2 การรับรู้การปฏิบัติสมาธิเพื่อการเยียวยา การรับรู้องค์ความรู้ การรับรู้ผลดี และการรับรู้ความเสี่ยง

คำแนะนำ ทำเครื่องหมาย ✓ ลงในช่องที่ท่านเห็นว่าเป็นจริง มากที่สุด

คำถาม	ใช่	ไม่ทราบ	ไม่ใช่
1 การปฏิบัติสมาธิเพื่อการเยียวยาทำให้เกิดโรคความดันโลหิตสูง			
2. การฝึกลมหายใจช่วยลดความเครียด			
3. การเดินจงกรมไม่เกี่ยวกับความดันโลหิตสูง……			

การรับรู้ความรุนแรงจากการปฏิบัติสมาธิเพื่อการเยียวยา

คำแนะนำ ทำเครื่องหมาย ✓ ลงในช่องที่ท่านเห็นว่าเป็นจริง มากที่สุด

คำถาม	ใช่	ไม่ทราบ	ไม่ใช่
1 ผู้ที่ปฏิบัติสมาธิ เป็นผู้ที่มีปัญหาทางจิต			
2. ผู้ที่ปฏิบัติสมาธิ จะไม่สนใจผู้อื่น			
3. ผู้ที่ปฏิบัติสมาธิ จะชอบมองคนอื่นไม่…….			

การรับรู้ ผลดี ประโยชน์ ในการปฏิบัติสมาธิเพื่อการเยียวยา

คำแนะนำ ทำเครื่องหมาย ✓ ลงในช่องที่ท่านเห็นว่าเป็นจริง มากที่สุด

คำถาม	ใช่	ไม่ทราบ	ไม่ใช่
1 การปฏิบัติสมาธิ ทำให้เป็นคนไม่เห็นแก่ตัว			
2. การปฏิบัติสมาธิ ทำให้ความคิดดี……..			

ปัจจัยร่วมสิ่งที่ทำให้เกิดอุปสรรคในการปฏิบัติ

คำแนะนำ ทำเครื่องหมาย ✓ ลงในช่องที่ท่านเห็นว่าเป็นจริง มากที่สุด

คำถาม	ใช่	ไม่ทราบ	ไม่ใช่
1. การปฏิบัติสมาธิ จะต้องมีวินัยและสม่ำเสมอจึงจะเกิดผลดี			
2. ผู้ที่สูงอายุจะปฏิบัติสมาธิเพื่อการเยียวยาได้ดีกว่าคนอายุน้อย			
3. เพศหญิง จะปฏิบัติสมาธิเพื่อการเยียวยาได้ดีกว่า เพศชาย……...			

ส่วนที่ 2 แบบประเมินและสอบถามความรู้ เจตคติ การปฏิบัติสมาธิเพื่อการเยียวยา

2.1 ความรู้เรื่องการปฏิบัติสมาธิเพื่อการเยียวยา

คำแนะนำ ทำเครื่องหมาย ✓ ลงในช่องที่เป็นคำตอบที่ถูกต้อง

คำถาม	ใช่	ไม่ทราบ	ไม่ใช่
1. การปฏิบัติสมาธิทำให้ ระดับสารเครียดในเลือดลดลง			
2.การปฏิบัติสมาธิทำให้ การทำงานของภูมิคุ้มกันของร่างกายดีขึ้น			
3.การปฏิบัติสมาธิทำให้ อายุยืน			
4.การปฏิบัติสมาธิ เป็นการเพ่งไปที่สิ่งใดสิ่งหนึ่งเท่านั้น……..			

2.2 ทัศนคติต่อการปฏิบัติสมาธิเพื่อการเยียวยา

คำแนะนำ ทำเครื่องหมาย ✓ ลงในช่องที่เป็นคำตอบที่ถูกต้อง

คำถาม	เห็นด้วย	ไม่แน่ใจ	ไม่เห็นด้วย
1. การปฏิบัติสมาธิทำให้ ระดับสารเครียดในเลือดลดลง			
2. การปฏิบัติสมาธิทำให้ กล้ามเนื้อผ่อนคลาย……..			

แบบประเมินและแบบสอบถามการดำเนินการวิจัยระยะที่ 2 (สำหรับผู้ป่วยความดันโลหิตสูง)
ระหว่างอบรม

คำชี้แจง แบบประเมินกระบวนการระหว่างการฝึกอบรม ประกอบไปด้วย

1.1 คู่มือที่ใช้ในการอบรม
1.2 สื่อที่ใช้ในการอบรม
1.3 วิธีการถ่ายทอด
1.4 เทคนิคที่ใช้ในการถ่ายทอด
1.5 ความยากง่ายในการถ่ายทอด
1.6 สิ่งแวดล้อมในการฝึกอบรม
1.7 ความสามารถในการถ่ายทอดแก่ผู้ป่วย
1.8 การประเมินภาพรวม ครูก.(ผู้สอน)

คำแนะนำ ทำเครื่องหมาย ✓ ลงในช่องที่ท่านต้องการตอบ และกรุณาเติมข้อความลงในช่องว่าง

เนื้อหาที่ประเมิน	ระดับประเมิน				
	ดีมาก	ดี	พอใช้	ต้องปรับปรุง	ไม่แน่ใจ
1. คู่มือที่ใช้ในการอบรม					
ควรเพิ่มเติม……..					
2. สื่อที่ใช้ในการอบรม					
ควรเพิ่มเติม……..					

8. การประเมินภาพรวม ครูก.(ผู้สอน)

เนื้อหาที่ประเมิน	ระดับประเมิน				
	ดีมาก	ดี	พอใช้	ต้องปรับปรุง	ไม่แน่ใจ
8.1 ความเข้าใจต่อเนื้อหา					
8.2 ความรู้……					

แบบประเมินกระบวนการผู้เข้าร่วมโครงการ 1 เดือน (สำหรับผู้ป่วยความดันโลหิตสูง)

คำชี้แจง แบบประเมินกระบวนการระหว่างการฝึกอบรม ประกอบไปด้วย

1.1 เทคนิคและกระบวนการถ่ายทอดนวัตกรรม

1.2 กระบวนการจัดอบรม ความยากง่าย

1.3 สิ่งแวดล้อมในการฝึกอบรม

1.4 การประเมิน การประยุกต์ใช้ของผู้ป่วย

1.5 การประเมินความพึงพอใจของผู้ป่วย

1.6 การประเมิน การติดตามผลการนำไปประยุกต์ใช้ ในช่วง 1 เดือน และ 2 เดือน

1.7 การประเมินการเปลี่ยนแปลงสุขภาพของผู้ป่วย

1.8 แบบบันทึกการฝึกปฏิบัติสมาธิ

คำแนะนำ ทำเครื่องหมาย ✓ ลงในช่องที่ท่านต้องการตอบ และกรุณาเติมข้อความลงในช่องว่าง

1. ท่านได้รับการอบรม วันที่…… เดือน……..
2. ท่านได้รับการอนเทคนิคใดบ้าง…….(ตามชื่อแผ่นพับที่ท่านได้รับแจก)
4. ท่านคิดว่าเทคนิคที่ท่านเลือกใช้ได้เหมาะกับการฝึกของท่านเพียงใด……

( ) มาก ( ) ปานกลาง ( ) น้อย ( ) ไม่แน่ใจ

แบบบันทึกความสม่ำเสมอในการฝึกสมาธิเพื่อการเยียวยา เพื่อควบคุมความดันโลหิตสูง

N0……/ ชื่อผู้ฝึก……

เริ่มฝึกตั้งแต่วันที่…….เดือน…….พ.ศ……..

คำแนะนำ ทำเครื่องหมาย ✓ ลงในช่องที่เป็นคำตอบที่ถูกต้อง

ความถี่ในการฝึกสมาธิเพื่อการเยียวยา / สัปดาห์ที่	ทำทุกวัน	ทำ 3 ครั้ง/ สัปดาห์	ทำบ้าง1-2 ครั้ง/ สัปดาห์	ไม่ได้ทำเลย	สาเหตุที่ไม่ได้ทำ
สัปดาห์ที่ 1					
สัปดาห์ที่ 2					
สัปดาห์ที่ 3					

แบบบันทึกการฝึกสมาธิเพื่อการเยียวยา เพื่อควบคุมความดันโลหิตสูง รายวัน ใน 1 เดือน

คำแนะนำ ให้ท่านลงเวลาในการฝึก ในแต่ละวัน แต่ละสัปดาห์

สัปดาห์ที่	วัน	ท่าที่ฝึก/เวลาในการฝึก					
		เช้า		กลางวัน		เย็น	
		ครั้ง	นาที	ครั้ง	นาที	ครั้ง	นาที
1	จันทร์						
	อังคาร						
	พุธ						

แบบสัมภาษณ์ผู้ป่วยความดันโลหิตสูง

(In-depth interview guideline)

แบบสัมภาษณ์ นี้มีวัตถุประสงค์เพื่อค้นหาปัจจัยที่เป็นอุปสรรค และปัจจัยสนับสนุน ต่อการใช้เทคนิคสมาธิเพื่อการเยียวยา SKT-2 ในการควบคุมความดันโลหิตสูงในชุมชน ซึ่งจะอาศัยบริบทของชุมชนเป็นพื้นฐานโดยแบบสัมภาษณ์จะถามเจาะลึกเพื่อให้เกิดความชัดแจ้งในความหมายของผู้เข้าร่วมวิจัยเป็นหลัก ซึ่งผู้เข้าร่วมวิจัยจะถูกถามด้วยคำถามปลายเปิดดังต่อไปนี้

1. กรุณาเล่าถึงประสบการณ์การเจ็บป่วยด้วยโรคความดันโลหิตสูงของท่าน(ถามเจาะจงไปถึงความเจ็บปวด ระยะเวลาป่วย)
2. ……..
3. ……

หมายเหตุ: ก่อนการสัมภาษณ์ผู้วิจัยต้องแน่ใจว่าผู้เข้าร่วมวิจัยยินยอมร่วมมือ โดยถามความยินยอมและให้กรอกแบบฟอร์มยินยอมตามขั้นตอน พร้อมทั้งผู้วิจัยต้องแจ้งกระบวนการวิจัยแก่ผู้เข้าร่วมวิจัยอย่างชัดเจน และในระหว่างการสัมภาษณ์ผู้วิจัยจะขอใช้เทปบันทึกเสียง และขอจดบันทึกย่อการสนทนาด้วย

แบบประเมินกระบวนการผู้เข้าร่วมโครงการ 2 เดือน (สำหรับผู้ป่วยความดันโลหิตสูง)

วัน/เดือน/ปี ที่เก็บข้อมูล……

คำชี้แจง แบบประเมินกระบวนการระหว่างการฝึกอบรม ประกอบไปด้วย

1. การประเมิน การประยุกต์ใช้ของผู้ป่วย ในด้าน ความปลอดภัย สะดวก ราคาถูก ไม่มีผลข้างเคียง
2. การประเมินความพึงพอใจของผู้ป่วย
3. การประเมิน การติดตามผลการนำไปประยุกต์ใช้ ในช่วง 1 เดือน และ 2 เดือน
4. การประเมินการเปลี่ยนแปลงสุขภาพของผู้ป่วย
5. แบบบันทึกการฝึกปฏิบัติสมาธิเพื่อการเยียวยาของผู้ป่วย ประจำวัน

คำแนะนำ ทำเครื่องหมาย ✓ ลงในช่องที่ท่านต้องการตอบ และกรุณาเติมข้อความลงในช่องว่าง

1. ท่านอายุ……ปี เพศ □ ชาย □ หญิง
2. ท่านได้รับการฝึกสมาธิเพื่อการเยียวยาเมื่อ วันที่.....เดือน.....
3. ในรอบ 2 เดือนท่านได้ทำการฝึกหรือได้ใช้วิธีการที่เจ้าหน้าที่โรงพยาบาล/อสม.สอนในการดูแลสุขภาพตนเองหรือไม่ (ตามชื่อในแผ่นพับที่ท่านได้รับแจก)

   □ ไม่ได้ฝึก/ไม่ได้ใช้ □ ใช้เพราะเป็นเทคนิคที่ชอบ.....

   □ ใช้ผสมกับวิธีอื่นๆ ระบุวิธี..... □ ไม่ได้ฝึกเลยแต่ใช้ยารักษาโรค

   …….

   ……

เจ้าหน้าที่ผู้ดูแลท่านชื่อ…… .....

วัน/เดือน/ปี……

No……..…..

แบบประเมินและแบบสอบถามการดำเนินการวิจัยระยะที่ 3

คำชี้แจง แบบประเมินเดือนที่ 2 หลังการฝึกอบรม

กรุณาตอบแบบประเมินการวิจัยระยะที่ 3 ใน หลังการอบรม 2 เดือน

ส่วนที่ 1 1.1 ข้อมูลทั่วไป

1.2 แบบบันทึกสุขภาพรอบ 2 เดือน

ส่วนที่ 2 แบบประเมินและสอบถาม ความรู้ เจตคติ การปฏิบัติสมาธิเพื่อการเยียวยา

2.1 แบบประเมินความรู้เรื่องการปฏิบัติสมาธิเพื่อการเยียวยา

2.2 แบบวัดทัศนคติต่อการปฏิบัติสมาธิ

2.3 แบบสอบถามการปฏิบัติสมาธิหลัง ในรอบ 2 เดือน

ส่วนที่ 1

คำแนะนำ โปรดทำเครื่องหมาย ✓หรือ x ทับตัวเลขที่ท่านต้องการตอบ และกรุณาเติมข้อความลงในช่องว่าง อย่างครบถ้วน

1.1 ข้อมูลทั่วไปของผู้ป่วย…….

1.2 แบบบันทึกสุขภาพ รอบ 2 เดือน

1. ท่านคิดว่าสุขภาพร่างกายของท่านใน 2 เดือน ที่ผ่านมาเป็นอย่างไร

แย่มาก ปานกลาง แข็งแรงดี

0	1	2	3	4	5	6	7	8	9	10

ส่วนที่ 2 แบบประเมินและสอบถามความรู้ ทัศนคติ การปฏิบัติสมาธิเพื่อการเยียวยา

2.1 ความรู้เรื่องการปฏิบัติสมาธิเพื่อการเยียวยา

คำแนะนำ ทำเครื่องหมาย ✓ ลงในช่องที่เป็นคำตอบที่ถูกต้อง

คำถาม	ใช่	ไม่ทราบ	ไม่ใช่
1. การปฏิบัติสมาธิทำให้ ระดับสารเครียดในเลือดลดลง			
2.การปฏิบัติสมาธิทำให้ การทำงานของภูมิคุ้มกันของร่างกายดีขึ้น			
3.การปฏิบัติสมาธิทำให้ อายุยืน…….			

2.2 ทัศนคติต่อการปฏิบัติสมาธิเพื่อการเยียวยา

คำแนะนำ ทำเครื่องหมาย ✓ ลงในช่องที่เป็นคำตอบที่ถูกต้อง

คำถาม	เห็นด้วย	ไม่แน่ใจ	ไม่เห็นด้วย
1. การปฏิบัติสมาธิทำให้ ระดับสารเครียดในเลือดลดลง			

2.3 แบบสอบถามการปฏิบัติสมาธิหลัง ในรอบ 2 เดือน

คำแนะนำ ทำเครื่องหมาย ✓ ลงในช่องที่ท่านปฏิบัติสมาธิหรือกิจกรรมด้านสมาธิในรอบ 2 เดือนที่ผ่านมา

การปฏิบัติสมาธิในรอบ 2 เดือนที่ผ่านมา	ครั้ง/วัน	ครั้ง/ สัปดาห์	ครั้ง/เดือน	ฝึก1-2ครั้ง เพราะไม่มีเวลา	ไม่เคยได้ฝึกเลย
SKT 2					
SKT……					

APPENDIX B :

Manual of practice SKT-2 Technique and guideline of follow-up and monitoring

Manual of practice SKT-2

คู่มือการฝึก เทคนิค SKT-2

การฝึกเทคนิค SKT-2 มีขั้นตอนดังนี้

1. สวมเสื้อผ้าที่สบาย ปลดเข็มขัด ยืนในท่าสบายหลังตรง เท้าแยกจากกันเท่ากับช่วงไหล่
2. ยกแขนขึ้นเหนือศีรษะให้ข้อศอกตรง หันฝ่ามือทั้ง 2 ข้างประกบกัน นิ้วหัวแม่มือไม่ควรเกี่ยวกันให้ประกบกันเท่านั้นโดยให้แขนทั้ง2ข้างแนบหูตลอดการ

3. ค่อยๆหลับตาลงช้าๆ แล้วเริ่มด้วย สูดลมหายใจเข้าทางจมูกลึกๆ ช้าๆ แล้วกลั้นหายใจนับ 1-3 ช้าๆ แล้วเป่าลมออกทางปากช้าๆ ให้นับเป็น 1 รอบ ทำซ้ำแบบนี้ 30-40 รอบ
4. เมื่อครบ 30-40 รอบ ค่อยๆลืมตา อย่าเพิ่งลดแขนลง ให้นับ 1 ถึง 30 พร้อมกับค่อยๆแยกมือออกจากกัน และค่อยๆลดมือลง (ท่า นกกางปีก) เมื่อนับถึง 15 แขนทั้ง 2 ข้างจะกาง ขนานกับพื้น เสมอหัวไหล่ และลดมือลงจนสุดชิดลำตัวเมื่อนับครบ 30 ครั้ง
5. ให้ปฏิบัติวันละ 3 รอบ ก่อนหรือหลังอาหาร

เทคนิค SKT-2 ช่วยอย่างไรในการลดความดันโลหิตสูง

กล่าวโดยย่อเพื่อให้เข้าใจโดยง่าย จำได้ และนำไปสอนถ่ายทอดแก่ผู้อื่นอย่างมั่นใจ ดังนี้

1. การหลับตาหายใจตามเทคนิค SKT เป็นการควบคุมประสาทสัมผัสทางตา จมูก และหู ผสานกับการนับเลข ทำให้เกิดสมาธิ **(ใจจดจ่อกับการนับหายใจ)** เกิดการทำงานใจประสานกาย จึงลดความเครียด ร่างกายผ่อนคลาย คลื่นสมองสงบ ระบบการไหลเวียนสมดุล และทำให้ความดันโลหิตเข้าสู่สมดุล (ท่องว่าหลับตา หายใจ นับ ทำให้ผ่อนคลาย ไหลเวียนสมดุล)

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คู่มือการติดตาม

การติดตามการฝึกสมาธิเพื่อการเยียวยา (SKT-2)

ชื่อครู ก. …….

หัวหน้าทีม……..

ชื่อ-สกุลผู้ป่วยที่รับผิดชอบ

1……..……หมู่ที่……..เบอร์โทร……

2……..……หมู่ที่……..เบอร์โทร……

3……หมู่ที่……..เบอร์โทร……

4……หมู่ที่……..เบอร์โทร……

คำชี้แจงในการติดตาม

1. นัดวันเวลากับผู้ป่วย เพื่อติดตามเยี่ยม และวัดความดันโลหิต
2. ตามเยี่ยมผู้ป่วยติดตามการฝึกสมาธิเพื่อการเยียวยา SKT-2
   2.1 **ถามถึงความถี่ในการฝึก** ฝึกวันละกี่รอบ (รอบเช้า-เที่ยง-เย็น) รอบละกี่ครั้ง (นับครั้งการหายใจ)
   2.2 **ขอดูการลงบันทึกของผู้ป่วย** และสอบถาม ถ้าลงไม่ครบ
   2.3 **ขอให้ผู้ป่วยสาธิตการฝึก** สมาธิเพื่อการเยียวยา SKT-2 ให้ดู
   2.4 **ให้คำแนะนำ** และสอนใหม่ถ้าผู้ป่วยทำไม่ถูกต้อง
   2.5 หากมีปัญหาและอุปสรรคที่ไม่สมารถฝึกได้ ให้ครูก.บันทึกไว้และแจ้งแก่ เจ้าหน้าที่สาธารณสุขหัวหน้าทีม เพื่อหาแนวทางแก้ไข
3. วัดความดันโลหิต และลงบันทึก พร้อมทั้งแจ้งผลแก่ผู้ป่วยและ เจ้าหน้าที่สาธารณสุขหัวหน้าทีม
   การวัดความดันโลหิตควรปฏิบัติดังนี้
   - วัดก่อนและหลังการฝึก SKT-2
   - ใช้เครื่องวัดเดียวกันทุกครั้ง
   - ผู้วัดเป็นคนเดียวกันทุกครั้ง
   - ในผู้ป่วยคนเดียวกันควรวัดแขนข้างเดียวกัน และเวลาที่วัดเดียวกันทุกครั้ง เช่นเวลา 18.00น.ทุกครั้ง (เวลาสะดวกตามที่นัดหมายทั้ง 2 ฝ่าย)

ให้ครู ก. ลงบันทึกเฉพาะหน้าที่ 2 และ หน้าที่ 3 เท่านั้น (หน้าที่ 4 ขอดูผู้ป่วยเท่านั้น)

@@@หากมีปัญหาหรือข้อขัดข้อง ต้องรายงานหัวหน้าทีมโดยทันที@@@@

BIOGRAPHY

NAME	MISS Supaporn Naewbood
DATE	8 November 1972
PLACE OF BIRTH	Ubonratchathani, Thailand
INSTITUTIONS ATTENDED	Mahidol University, Bachelor of Nursing Science,1994 Chulalongkorn University, Master degree of Education (Health Education),1998 Mahidol University, Mater of Nursing Science (Community Health Nursing), 2005 Mahidol University, Doctor of Public Health (Public Health Nursing), 2006-2012
POSITION & OFFICE	Nurse instructor, Faculty of nursing, Naresuan University, Phitsanulok Province.
SCHOLARSHIP	The Higher Education Commission, Thailand (2006-2010)