EFFECTS OF A MULTICOMPONENT PROACTIVE NURSING PROGRAM APPLYING THE CHRONIC CARE MODEL ON BLOOD PRESSURE CONTROL AND SATISFACTION WITH CARE OF HYPERTENSIVE OLDER PERSONS

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A Dissertation Submitted in Partial Fulfillment of the Requirements

for the Degree of Doctor of Philosophy Program in Nursing Science

Faculty of Nursing

Chulalongkorn University

Academic Year 2011

ผลของโปรแกรมการพยาบาลเชิงรุกแบบพหุองค์ประกอบโดยประยุกต์ใช้โมเดลการดูแลผู้ป่วยโรคเรื้อรังต่อการควบคุมความดันโลหิตและความพึงพอใจในการดูแลสุขภาพของผู้สูงอายุโรคความดันโลหิตสูง

นางสาวเรวดี เพชรศิราสัณห์

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาพยาบาลศาสตรดุษฎีบัณฑิต
สาขาวิชาพยาบาลศาสตร์
คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
ปีการศึกษา 2554

Thesis Title	EFFECTS OF A MULTICOMPONENT PROACTIVE NURSING PROGRAM APPLYING THE CHRONIC CARE MODEL ON BLOOD PRESSURE CONTROL AND SATISFACTION WITH CARE OF HYPERTENSIVE OLDER PERSONS
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เรวดี เพชรศิราสัณห์ : ผลของโปรแกรมการพยาบาลเชิงรุกแบบพหุองค์ประกอบโดยประยุกต์ใช้โมเดลการดูแลผู้ป่วยโรคเรื้อรังต่อการควบคุมความดันโลหิตและความพึงพอใจในการดูแลสุขภาพของผู้สูงอายุโรคความดันโลหิตสูง (EFFECTS OF A MUTICOMPONENT PROACTIVE NURSING PROGRAM APPLYING THE CHRONIC CARE MODEL ON BLOOD PRESSURE CONTROL AND SATISFACTION WITH CARE OF HYPERTENSIVE OLDER PERSONS) อ. ที่ปรึกษาวิทยานิพนธ์หลัก: ศ. ดร. วีณา จีระแพทย์, อ. ที่ปรึกษาวิทยานิพนธ์ร่วม: ผ.ศ. ร.อ. หญิง ดร. ศิริพันธุ์ สาสัตย์, 288 หน้า

ความดันโลหิตสูงเป็นปัญหาที่พบบ่อยในผู้สูงอายุและความสำเร็จในการควบคุมความดันโลหิตค่อนข้างจำกัด การศึกษาวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาประสิทธิภาพของโปรแกรมการพยาบาลเชิงรุกในผู้สูงอายุโรคความดันโลหิตสูงต่อการควบคุมความดันโลหิตและความพึงพอใจในการดูแลสุขภาพ

โปรแกรมการพยาบาลแบบเชิงรุกแบบพหุองค์ประกอบเป็นเวลา 3 เดือน การพัฒนาโปรแกรมภายใต้กรอบแนวคิดของรูปแบบการดูแลผู้ป่วยเรื้อรังของ Wagner (1998) กลุ่มตัวอย่างเป็นผู้สูงอายุโรคความดันโลหิตสูง จำนวน 100 ราย ที่มารับบริการในโรงพยาบาลส่งเสริมสุขภาพระดับตำบล 2 แห่งในจังหวัดนครศรีธรรมราช ผู้สูงอายุในกลุ่มควบคุมได้รับการดูแลตามปกติ ผู้สูงอายุในกลุ่มทดลองได้รับการดูแลตามปกติร่วมกับการพยาบาลเชิงรุกแบบพหุองค์ประกอบ เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลได้แก่ เครื่องวัดความดันโลหิต และแบบสอบถามความพึงพอใจต่อบริการการพยาบาล มีการตรวจสอบความเที่ยงโดยสัมประสิทธิ์อัลฟาครอนบาคมีค่าเท่ากับ .87 การวิเคราะห์ข้อมูลใช้สถิติ Repeated measure ANOVA and Chi-square test

ผลการศึกษาพบว่าภายหลังการเข้าร่วมโปรแกรมการพยาบาลเชิงรุก ผู้สูงอายุกลุ่มทดลองมีค่าเฉลี่ยของความดันโลหิตซีสโตลิกและความดันไดแอสโตลิกภายหลังการทดลอง 3 เดือน และ 6 เดือน ต่ำกว่าและมีความแตกต่างระหว่างทั้งสองกลุ่มอย่างมีนัยสำคัญทางสถิติ ($p < .001$) สัดส่วนของผู้สูงอายุในกลุ่มทดลองสามารถควบคุมความดันโลหิตได้ตามเกณฑ์สูงกว่าผู้สูงอายุในกลุ่มควบคุม ภายหลังการทดลอง 3 เดือน และ 6 เดือน แตกต่างกันอย่างมีนัยสำคัญทางสถิติ ($p < .001$) และ ($p = .005$) กลุ่มทดลองมีคะแนนความพึงพอใจต่อการบริการพยาบาล สูงกว่าก่อนการทดลองและสูงกว่ากลุ่มควบคุมที่ได้รับการดูแลตามปกติ ($p < .001$) ดังนั้นควรโปรแกรมการพยาบาลเชิงรุกแบบพหุองค์ประกอบไปใช้ในโรงพยาบาลส่งเสริมสุขภาพระดับตำบลเพื่อเพิ่มการควบคุมความดันโลหิตในผู้สูงอายุที่ควบคุมความดันโลหิตไม่ได้

สาขาวิชา พยาบาลศาสตร์ ลายมือชื่อนิสิต .....

ปีการศึกษา 2554 ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก .....

ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์ร่วม .....

5077972136: MAJOR NURSING SCIENCE
KEYWORDS: MULTICOMPONENT PROACTIVE NURSING PROGRAM /BLOOD PRESSURE CONTROL/HYPERTENSION/CHRONIC CARE MODEL/OLDER PERSONS/SATISFACTION WITH CARE

REWWADEE PETSIRASAN: EFFECTS OF A MULTICOMPONENT PROACTIVE NURSING PROGRAM APPLYING THE CHRONIC CARE MODEL ON BLOOD PRESSURE CONTROL AND SATISFACTION WITH CARE OF HYPERTENSIVE OLDER PERSONS.
ADVISOR:PROF. VEENA JIRAPAET, Ph.D.,
CO-ADVISOR: ASST. PROF. SIRIPHAN SASAT, Ph.D., 288 pp.

Hypertension is a common health problem in older persons and has been met with limited success in controlling blood pressure worldwide. The purposes of this research were to evaluate the effects of a multicomponent proactive nursing (MPN) program on blood pressure control and satisfaction with care of hypertensive older persons.

The 3 month MPN program based on the Chronic Care Model (Wagner, 1998), was developed by literature review and implemented at two health centers in Nakhon Si Thammarat, Thailand. A hundred participants were studied with matched pairs and random assignment to the intervention or control group. The intervention consisted of education, monitoring, and skill training. Testing was conducted at baseline, 3 and 6 month on both an experimental and a control groups. Data was analyzed by repeated measures ANOVA and Chi-square.

The results indicated that the participants in the experimental group had lower mean values of systolic and diastolic blood pressure at three and six months. Post-test mean values of systolic and diastolic blood pressure were significantly lower in the experimental group ($p < .001$). The percentage of participants maintaining blood pressure control was also significantly greater in the intervention group at 3 months ($p < .001$) and at 6 months ($p = .005$). The findings indicated that the MPN program effectively improved blood pressure control and in hypertensive older persons. Moreover, the program was effective for increasing patient satisfaction with nursing care score in the experimental group ($p < .001$) compared to the control group. These results suggest that implementing this program at health centers would result in better control of HTN in this high risk group.

Field of Study : Nursing Science ..... Student's Signature .....

Academic Year : 2011 ..... Advisor's Signature .....

Co-advisor's Signature .....

ACKNOWLEDGEMENTS

I would like to acknowledge many people for my successful studying in Ph.D. program. First of all, I would like to express my sincere gratefulness and deep appreciation to Professor Veena Jirapaet, my advisor who came up with brilliant and thought provoking questions, comprehensive suggestions, and invaluable support throughout the dissertation process and gave me her knowledge and challenged me to grow as a good researcher. I would like to express my sincere gratitude to Assistant Professor Capt. Siriphan Sasat, my co-adviser for her valuable time to give support, guidance, and thoughtfulness suggestions to conduct the research. Assistant Professor Runirund Praditsuwan and who provide me with very helpful suggestion in research design. Also Professor Kriangsak Jirapaet for his warmth regards unconditional support throughout the good and difficult time during my Ph.D. study. In addition, I would also like to thank my dissertation committee members for sharing experience and knowledge to me.

I am indebted to the experts who provide me with very helpful suggestions and comments for revising and refining my instruments. I am grateful to Professor Paula M. Meek and Assistant Professor Marylou V. Robinson at College of Nursing, University of Colorado, Colorado, USA, for their warmth supervision and precious time during my study visiting there.

I am also grateful all participants in this study for their time, sharing experience, and commitment in participation to give me valuable data. Many thank for my research assistances especially community health volunteer and staff nurses at Photong, and Mokhlan health centers for their cooperation and their warm support during try out and data collection process.

I would like to express my sincere gratitude to Dean of School of Nursing, Walailak University for allowing me a study leaving and all of my colleagues who carry on more duty during my leaving. We express their gratitude to the Commission on Higher Education, Ministry of Education, Thailand and the 90th Anniversary of Chulalongkorn University Fund (Ratchadaphiseksomphot Endowment Fund) for financially support.

Lastly, I would like to express my sincere thanks go to my friends and my entire doctoral classmates for their love, unconditional support throughout the good and difficult time during my Ph.D. study experiences. I received whole-hearted encouragement and tremendous support from my family.

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CHAPTER I

INTRODUCTION

Background and significance of the study

As the proportion of the aging population increases, the number of those suffering from chronic illnesses and disability has exerted substantial pressure on the demand for long-term care. As an example, hypertension (HTN) is a common problem with a rising prevalence among older persons. Additionally, there has been limited success in controlling blood pressure (BP) worldwide (Borzecki, Oliveria, and Berlowitz, 2005; Gupta, et al., 2011; Kearney, et al., 2004; Lexin and Tiemin, 2006; Wang, Alexander, and Stafford, 2007; Wolf-Maier, et al., 2004). In Thailand, HTN is diagnosed in nearly half of all older persons (Yaowarat Porapakkham and Pornphan Bunyaratapandu, 2006), and is associated with mortality rates of 25.4 per 100,000 persons (Bureau of Health Policy and Strategy in Thailand, 2008). The Disease Control Department in Thailand reports that HTN was rapidly increasing among older persons with rates of 55.23, 56.01 and 56.60 percent in 2006, 2007 and 2008, respectively. Among those with complications, the rates were 7.6, 11.68 and 18.07 percent for this same period (Annual Epidemiology Surveillance Report, 2009).

The pathophysiology of HTN in older persons has been characterized by; increased total peripheral vascular resistance, decreased compliance of large and medium-sized arteries, a tendency for a decrease in cardiac output and circulating blood volume, increased fluctuation of blood pressure (as a result of an age-related decrease in baroreceptor function), decreased blood flow, and dysfunction of auto

regulation in important target organs, such as the brain, heart and kidney (Kaplan, 2002). These changes lead to severe and immediate disabilities as well as progressive disability among older people, resulting in their inability to care for themselves (Fried and Guralnik, 1997). Older hypertensive patients are more likely to have an elevated systolic blood pressure (SBP) and a low diastolic blood pressure (DBP). Both conditions have been related to a loss of arterial compliance, an increase in left ventricular mass and a decrease in peripheral resistance (Black, 2003). In particular, in older persons (60-79 years of age), a community-based epidemiological analysis has shown a significantly higher prevalence of cardiovascular disease than those with optimal and normal blood pressure-BP (Ogihara and Rakugi, 2005).

Therefore, HTN in older persons must be treated with recognition of the pathophysiological changes associated with BP, in this age group (Ogihara and Rakugi, 2005). Hypertension can be therapeutically controlled with both pharmacologic and non-pharmacological treatment (Chobanian, et al., 2003). However, despite the demonstrated benefits of effective available treatment strategies (Chobanian, et al., 2003; Williams, et al., 2004) and the existence of many clinical practice guidelines (Lloyd-Jones, Evans and Levy, 2005), the degree of BP control has been poor in clinical practice, worldwide (Gupta, et al., 2011; Kearney et al., 2004; Wang et al., 2007). Based on the Seven Report of National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC-7), 50% of patients with HTN discontinue their medications and 66% are unable to achieve BP control (Chobanion, et al., 2003). Duggan and others (2001) found that only 14% of older people with hypertension had the condition detected, treated and adequately controlled by general practitioners in the United Kingdom. In Thailand,

the number of older persons who were identified as achieving a targeted goal for BP control was only 21.7 to 37.3% (Wichai Aekplakorn, 2010). Therefore, control of HTN remains a significant problem for a large group of older persons.

Plausible explanations for this poor control include; lack of awareness of HTN, irregular engagement in a healthy lifestyle, lack of adherence to medication use (Fashey, Schroeder and Ebrahim, 2005; Wang and Vasan, 2005); and lack of understanding by caregivers on how to care for patients with hypertension (Sukanya Sakcomeduang, 2009). Challenges in identifying and treating HTN in the health care delivery system include: the rapidly rising number of patients in parallel with the increasing age of the population which exceeds the ability of the existing health-care service at health centers; the health-care system falling short in its ability to translate knowledge into routine medical practice; and the health-care delivery system being designed for “curative care” for people with chronic diseases, rather than preventing or working with patients to manage their HTN. This traditional approach to care has been described as “clinical inertia”, and has been implicated as a reason for the failure to achieve treatment goals in HTN (Nelson, et al., 2011; Philips et al., 2001). In essence, the health care system is poorly prepared or organized for providing the full complement of services needed by people with common chronic conditions (Wiroj Chemcharasrangsri, 2008).

The National Statistical Office (2009) reported that morbidity of older people with hypertension in Nakhon Si Thammarat were 65% and diabetes 55%, consistent with the chronic illness in the first two rank among older people in Thailand include: cardiovascular disease and endocrine disease. Recently, the shortage healthcare staff to care a lot of older people with chronic condition was significant problem of health

care system. However, a chronic care clinic is available monthly at the health center in Nakhon Si Thammarat for patients with chronic disease follow-up. At the clinic, people with hypertension are provided with the following by a staff nurse: (1) general information not with approaches taking into consideration the needs of older hypertensive patient, (2) physical examination, (3) evaluation of compliance to pharmacological treatment. Despite the availability of this clinic, there are limitations of home healthcare services for older patients with HTN because of a shortage of nursing staff. At these health center's, there are technical nurses and healthcare staff, but most of them focus primarily on common health problems and environmental problems of the community instead of the health care needs of older people with hypertension.

Accordingly, the literature reviewed in Thailand during 1980 to 2005 reported various interventions established in both hospital-based and community-based care aimed at improving BP control and behavioral changes among adult and older persons (Sarinpas Netnarongporn, 2008). An effective HTN approach, has been described as; regular follow-up visits over an extended period of time in order to promote long-term BP control (Handerson, et al., 2003; Sacco, et al., 2004). Nurse led care may be a promising way of improving control in patients with hypertension. The majority of randomized control trials have shown an association between this nurse care with improved BP control (Glynn, Murphy, Smith, Schroeder, and Fahey, 2010). However, because of the chronic nature of HTN, any nursing intervention in a community setting should be tested for a prolonged period of time (Fernandez et al., 2008) to sufficiently evaluate if change has taken place.

Good chronic disease management offers real opportunities for improvements in patient care and service quality. Strategies for managing chronic illness include using explicit guidelines, closer follow up, and systematic attention to the needs of patients in terms of information and behavioral change (Wagner, Austin, and Von, 1996). Delivering hypertension management requires a proactive orientation in order to meet the goal of long-term BP control. Community nurses can serve in this role by collaboratively working with staff involved in the provision of services as well as working with not only the people with long-term conditions but their families at their residence (Narasri, Sungsitthisawad, Janposri, and Kotdong, 2005). This can be accomplished by building capacity for community health volunteers to provide care for older people with long-term conditions (The National Committee on Elderly of Thailand, 2011). By building this capacity, the nurse can deliver a multi-component, holistic approach designed in more effective long-term care system within the limited resources (Siriphan Sasat, 2012),

The Chronic Care Model (CCM) (Wagner, 1998) provides a good framework for developing a comprehensive and multi-system approach, making it ideal for working with vulnerable populations with chronic illness (Wang et al., 2004). This approach could also allow patients to remain in their communities, while improving health outcomes and satisfaction with their care (Wagner, 1998). The CCM elements were incorporated into an intervention, with a focus on prevention and improvement of self-management to help achieve and sustain BP control. The CCM can expand nursing roles and opportunities to engage patients and other health professionals in the process of achieving health behavioral changes. Nurses can provide continuity and organization for other team members to collaborate for optimal outcomes. A focus on

prevention, elimination of barriers to care, and self-management are integral strengths that contribute to help sustain optimal target outcomes in care (Watt, et al., 2009: 172) via a self management group support to older persons, using group activities to help them construct their definition of the problem, collaborative goal setting and problem solving, and contracting for change and continuing support.

Patient satisfaction can serve as an outcome measure of the quality of health care and provides a consumer perspective that can contribute to a complete, balanced evaluation of the structure, process, and outcome of services. Patient satisfaction has been predictive of such health-related behaviors as compliance and is related to self-reported improvement in health (Pasco, 1983). Lack of satisfaction can result in switching providers, which if frequent enough, can result in an added burden to the health care system. Patient satisfaction is therefore a relevant criterion to assess the performance of a health care system (Kroneman, Maarse, and van de Zee, 2006). There is significant evidence based on support the effectiveness of the CCM model (Bodenheimer, 2003; Cretin, Shortell, Keller, 2004; Sperl-Hillen, 2004; Tsai et al., 2005).

The purpose of this study was to determine if a three month multicomponent proactive nursing (MPN) program for older hypertensive patients, could improve the number of individuals that achieve and maintain BP control and result in patient satisfaction with nursing care. Comparisons between the assigned participants in the intervention and the control groups were done at 3 and 6 months. The outcomes of this study were BP control and satisfaction with care. Blood Pressure control can change within one to three months (Bondmass et al., 1998) therefore, evaluations at three months are needed to ensure BP control was sustained (Elliott, 2007).

In order for the findings from this study to be generalized to other situations of older hypertensive patients requiring a significant nursing intervention, the study must present the way that providing effective nursing care, and improving cost effectiveness. Moreover, the knowledge from this study would provide direction for setting policies and integrating this model into nursing practice in the primary care setting.

Research question

Does the multicomponent proactive nursing program applying the Chronic Care Model, improve BP control and increase satisfaction with care in hypertensive older persons?

Research objective

To examine the effects of a multicomponent proactive nursing program, application of the Chronic Care Model was used for BP control and satisfaction with care in hypertensive older persons.

Theoretical framework

Hypertension has long been recognized as a risk factor for cardiovascular mortality and myocardial infarctions. The systolic value is the top number and represents the maximum pressure being generated as the heart forces blood out of the ventricle into the arteries with each heartbeat. The diastolic value is the bottom number and represents the resting pressure between heartbeats. Recommendations are to aim in older patients for a target of less than 140/90 mm Hg for general hypertensive patients and less than 130/80 mm Hg for diabetic or chronic kidney disease (Chobanion, et al., 2003).

The theoretical framework of this study was based on the CCM for delivering quality care to older hypertensive patient in order to improve BP control. The model was developed from evidence-based practices. The assumption of the model was to improve nursing care, and this approach would include patient, care provider and a systemic intervention (Fiandt, 2006). The components of CCM include;

(1) health system, serves as the foundation by providing structure and goals;

(2) community, to link with community resources;

(3) decision support, to ensure that care providers have access to evidence-based guidelines;

(4) clinical information systems, to provide timely access to registry data about patients and patient populations using clinical information systems;

(5) self-management, to help older persons with hypertension obtain skills and confidence to self-manage and focuses on patient-centered care and goal-setting;

(6) delivery system design, to restructure nursing practices to facilitate team care that involves nurses in delivering care (Siminerio, et al., 2006).

As mentioned above, the nurse researcher recognizes that the community care setting is at the forefront of the health care system. Therefore, a MPN (Multicomponent Proactive Nursing Program) was developed to use a holistic approach to care, requiring productive clinical interactions between informed and activated patients and properly prepared proactive practice teams. This program was aimed to prepare a proactive team, coordinated by a nurse, to inform and mobilize older hypertensive patients to control their HTN. The proactive team members have the patient information, decision support, equipment, and time required to deliver evidence-based clinical management and self management support at the time of the visit (Nutting, et al., 2007).

The MPN program was a multi-component intervention, coordinated by the nurse researcher, with a proactive team, the participation of family caregivers and community health volunteers. The elements of CCM (Wagner, Austin and Von, 1996) selected for this study were; self management support, delivery system design, decision support and clinical information system (Figure 1). The intervention included the following:

(1) Self management support (Steverink, Linddenerg and Slaets, 2005) Provide enhanced awareness of HTN, and adherence to medication and healthy lifestyle among older hypertensive patient. Also to improve knowledge among their caregivers on how to care for older patients with HTN. This consisted of interactive group education and patient-center group support, including fellow older persons, families, and health volunteers (who are a valued community resource) to care for older hypertensive patients. The group activities focused on health education and skill training for changing behaviors in order to improve BP control. The basic hygiene practices to prevent and care for common problems for older persons and reinforced by using incentive rewards for participants who met the targeted BP,

(2) Delivery system design. (Wagner, Austin, and Von, 1996) Encourage active involvement in HTN management and promote regular follow up visits, consisting of pre-planned (proactive) home visits, based on patient performance/health outcome achievement, follow up reminder system for ensuring follow up, regular follow-ups over an extended period of time with frequent visits in order to promote long-term BP control (Handerson, et al., 2003; Sacco, Morrisson and Malone, 2004);

(3) Decision support. (Swerissen and Taylor, 2008) Build capacity of proactive team members, consisted of a staff training system focusing on problems arising or unsolved issues, hotline consultancy for onsite visits of staff members and application of hypertension standards of clinical practice (Chobanion et al., 2003) and

(4) Clinical information system to monitor, evaluate quality care and outcomes and formulate clinical information to support and conduct proactive care, consisting of monitoring and evaluation and developing proactive care plan.

The integration of all elements was held by the nurse researcher and proactive care team members. In each role, the nurse acted as educator, conducting interactive group education and a physical examination, monitoring medical adherence, and providing needed interventions for common health problem for patients. The nurse coordinated with the physician in cases of complicated participants; facilitated each team member to launch the program by consulting and educating; and empowered team members by using the best proactive home visit plan and blood pressure control in monthly team meeting.

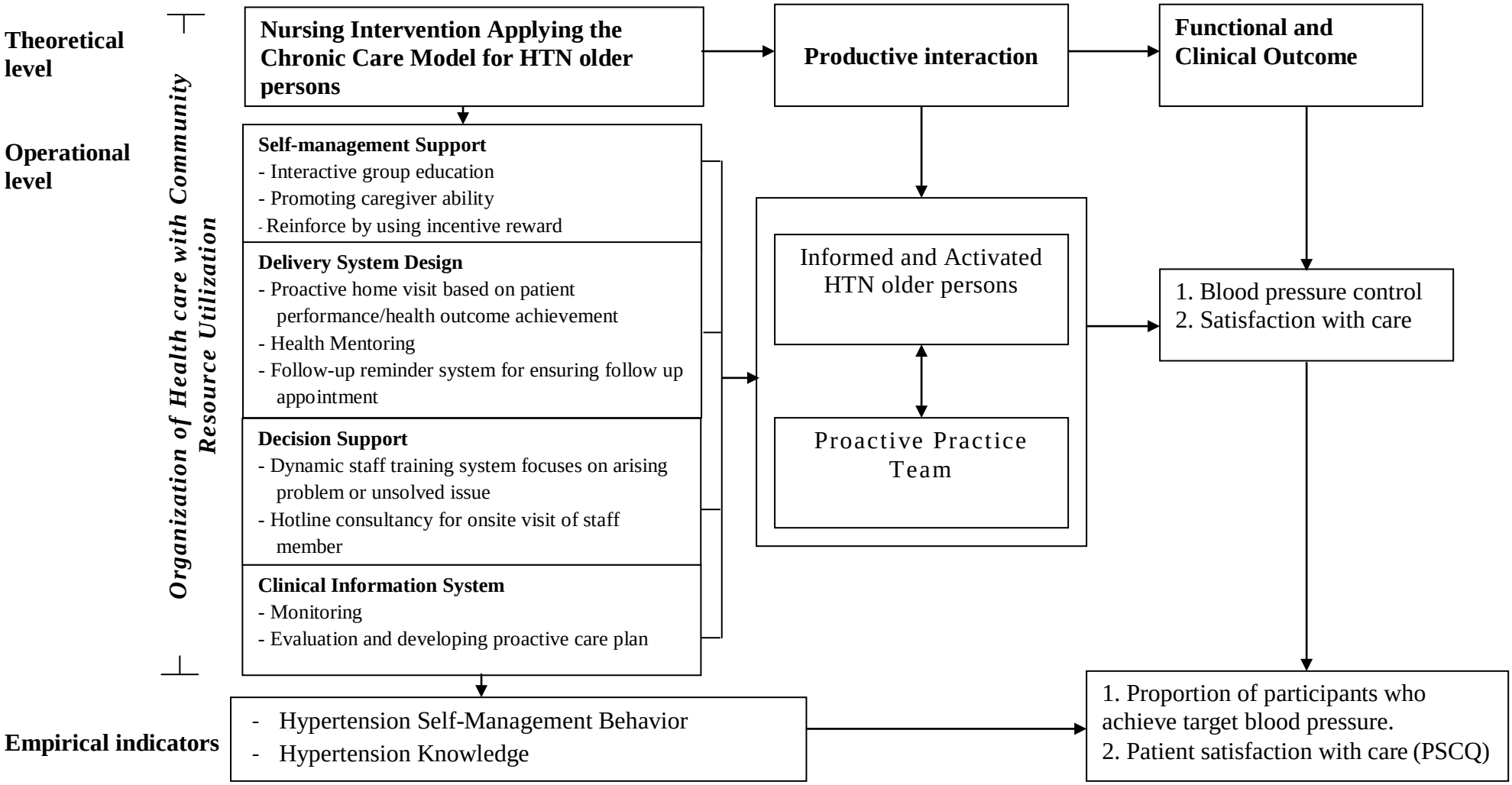
Community health volunteers were given time to develop therapeutic relationships with families, acted as health mentors and promoters by home visits to review the diary, record observed problems, promote self management and a healthy lifestyle through both individualized and group activities. They provided a range of social, emotional and practical services for patients and families at their residence.

Public health officers were assigned responsibility for active outreach to patients with hypertension who missed visits or were not in acceptable control. These individuals were presented at monthly team meetings, which facilitated development of an individualized proactive care plan in advance of the home visit.

Patient's satisfaction is the voice of patient that should be acknowledged, since it reflects the response to their experience with interactions with the care givers (Wolosin, 2005). It can serve as an outcome measure of the quality of health care and provides a consumer perspective that can contribute to a complete, balanced evaluation of the structure, process, and outcome of services. Patient satisfaction is one of several criteria utilized to measure the quality of health services provided to patients (Bond, and Thomas, 1992 cited in Knudtson, 2000; Donabedian, 1988). Patient satisfaction is a relevant criterion to assess the performance of a health care system (Madelon, et al., 2006). In Thailand, it has been shown that community-based care programs increased satisfaction with care (Skultala Anuruang et al., 2009; Naiyana Noonil et al., 2006).

Theoretical Framework

Based on Chronic Care Model (Wagner, 1998)



Research hypothesis and rationale

The rationale for these hypotheses is based on the fact that hypertension has long been recognized as a risk factor for cardiovascular mortality and myocardial infarctions. Obtaining the systolic and diastolic BP was needed as objective evidence of BP control. The MPN program is based on the CCM for delivering quality care to older hypertensive patients in order to improve hypertension outcomes. It was developed using a holistic approach. This program was aimed to prepare a proactive team, coordinated by a nurse, to inform and activate older hypertensive patients performing regularly healthy task.

This study was designed to show that the MPN, based on the CCM, can be implemented among older hypertensive patients dwelling in a community, to improve BP control rate and patient satisfaction with nursing care scores over 3 months. This study will provide evidence that a theory-based nursing strategy, utilizing a proactive intervention, can facilitate changes in identified outcomes by enhancing self-management skills, an important factor in the promotion of better BP control (Chodosh et al., 2005). The study promoted goal setting for BP control and encouraged patients to change their behaviors by group discussion and self-management support (Rocha-Goldberg and María del Pilar, 2010; Fernandez et al., 2008; Cakir and Pinar, 2006) and reinforcement by a home-visits (Pezzin et al., 2010; Garcia-Pena et al., 2001). This was accomplished by, the nurse researcher providing patients with the skill s and motivation needed to modify their behavior through three health behavior workshops, in cooperation with the family caregiver and community health volunteer. These methods can encourage and empower participants to have more confidence in their abilities to deal with their HTN as well as promote clinicians

to prepare proactive, individualized plans to manage participants, not meeting their BP goal. This study also provides support for developing an intervention to prepare proactive teams to ensure successful self management. Such teams foster communication between clinicians and well-informed patients (Siminerio et al., 2006) with the team-based care having shown to have the greatest effect on improving BP (Carter et al., 2009). This study monitored BP levels and shared clinical information to provide a system of decision-support among team members to improve the process of care and some clinical markers of the quality care.

The older hypertensive patients need more specialized care to enhance compliance with their medication plan as well as lifestyle change. Schroeder, Fahey and Ebrahim (2004) mentioned that complex interventions compared with less complex interventions were associated with large net reduction in BP.

The MPN program is proposed to be useful and effective because it also selected strategies regarding each objective, and also selected a limited number of self-management targets related to needs, values, and priorities of this population so as to make learning easier (Figar et al., 2006; Kinzie, 2005). More intensive therapy involving more frequent group and individual contacts and additional behavioral components, has been previously shown to result in a significant reduction of BP (Pantip Sangprasert and Netip Pradujkanchana, 2010).

Satisfaction is a major indicator of quality care (O'Connell, Young, and Twigg, 1999). Providing quality care by nurses increases satisfaction because many factors have been shown to be positively correlated including continuity of care, trust, access, interactive care, communication skills of the provider, and technical care and nursing practices (Alazri and Neal, 2003) emphasizing factors and their competency

will increase patient satisfaction (Moscato et al., 2007). This means that older hypertensive patients were satisfied with the intervention, the ease of access to utilize services and usefulness of the information concerning program that they received.

The research hypotheses for this study were:

1. Older hypertensive patients in the experimental group would have significant higher proportion of achieving blood pressure control than those in the control group at the third month and at the six month after the interventions.

2. Older hypertensive patients in the experimental group would have significant differences in means SBP and DBP across the three time periods from baseline to the third and sixth month after the interventions and significantly lower mean differences of SBP and DBP at all time periods than those in the control group.

3. Older hypertensive patients in the experimental group would report significantly higher mean satisfaction with care than those in the control group at the third month after interventions.

Scope of the study

The scope of the study is as follows:

1. A quasi-experimental with a control-group, pretest-posttest design was conducted to evaluate the effects of a proactive nursing program on BP control and satisfaction with care in older hypertensive patients.

2. The study was conducted among older hypertension patients who had attended the chronic care clinic at two heath centers in the southern part of Thailand. All participants in the control group and the intervention group received routine care from the clinics. Moreover, participants in the intervention group attended the MPN during the three-month period of their enrollment in the study.

3. The independent variable was the multicomponent proactive nursing (MPN) program. The dependent variables were BP control and satisfaction with care.

Operational definitions

Multicomponent Proactive nursing program consists of several interventions coordinated by a community health nurse at the health center. This intervention consisted of four components based on the CCM, operationalized by the nurse researcher. The MPN involved self management support, delivery system design, decision support, and clinical information systems for older hypertensive patients. This program consisted of (1) a self management support (Steverink, Linddenerg and Slaets, 2005) including interactive group education attended by fellow older patients, families, and community health volunteers (who are a valued community resource) to take care of older hypertensive patient. The group activities focused on health education and skill training for changing behavior to improve BP control. The basic hygiene practices to prevent and care for common problems of older persons and reinforced by using incentive rewards for participants who improved BP control. Provided in the education class was also; (2) delivery system design (Wagner, Austin, and Von, 1996) consisting of a proactive home visit based on patient performance/health outcome achievement, follow up reminder system for ensuring follow up, regarding the effective HTN approach, regular follow-ups over an extended period of time with frequent visits in order to promote a long-term BP control (Handerson et al., 2003; Sacco, et al., 2004); (3) decision support (Swerissen and Taylor, 2008) consisted of dynamic staff training system focusing on arising problem or unsolved issue, hotline consultancy for onsite visit of staff member

(Chobanion et al., 2003); (4) clinical information system consisted of monitoring and evaluation and developing a proactive care plan.

Blood pressure control refers to the blood pressure value of each patient that was measured and recorded in the medical record. The criterion for good BP control was based on JNC-7 guideline (Chobanion et al., 2003) to keep the systolic BP <140 mmHg and/or diastolic BP <90 mm Hg in general HTN, and for diabetic or chronic kidney disease patients, a of systolic BP <130 mm Hg and/or <80 mm Hg. Blood pressure was measured in millimeters (mm Hg) on both arms after he or she had rested for at least 5 minutes, in accordance with the standardized protocol of the European Society of Hypertension-ESH and European Society of Cardiology-ESC guidelines (2007) using a automatic Omron calibrated cuff.

Satisfaction with care refers to the older hypertensive patient's feelings of happiness or pleasure when they received nursing care during the 3 months of the study. Satisfaction can be measured by the Patient Satisfaction with Nursing Care Questionnaire (PSNQ) developed by Suwisith and Hanucharurnkul (2011). The questionnaire consisted of 15 items which measured older patients' satisfaction with nursing care in three areas: 1) being sympathatetic, 2) professional competence, and 3) accessibility to the service and care. The higher the scores, the more satisfaction the service receivers reported experiencing.

Older hypertensive patient refers to a person who was 60 years old and older and prior or new diagnosis of hypertension confirmed by ICD-10 coding.

Routine care Routine care refers to the care normally given at a health center by community health nurse to participants with hypertension in this study. The routine care is including monthly follow up appointment to refill antihypertensive medication

and providing individual and group health information by using brochure about HTN, lifestyle modification, and antihypertensive medication. Health referral services were also provided if hypertensive patients have complications or a need modification of prescription based on the clinical guideline for HTN.

Expected benefits

The expected outcomes of this study are;

1. Developing a MPN program to improve BP control in older hypertensive patients. Care management was linked to a patient registry used for creating reminders, collecting data, scheduling care, and providing performance data to caregivers.

2. Patients were supported through interactive group education, participatory goal setting, linkage to community services, and written care plans.

3. Patients had better management in their own care through monitoring, appropriate medication use, and health behavior choices.

4. Knowledge from this study would provide a direction for the development of policies and integrating successful strategies into nursing practice guidelines.

CHAPTER II

LITERATURE REVIEW

The review of theoretical and empirical literature, which was organized into six major parts, is to examine the following areas:

1. Hypertension care and management for hypertensive older persons
2. Profile of hypertension in older persons
3. Blood pressure control in hypertensive older persons
4. Satisfaction with care in hypertensive older persons
5. A multicomponent proactive nursing program based on the Chronic Care Model
6. Research studies on related variables

The literature review provides information that supports the intent of the present study was to determine the effects of multicomponent proactive nursing program based on the Chronic Care Model on blood pressure (BP) control and satisfaction with care in hypertensive older persons.

Hypertension care and management for hypertensive older persons

As demands for health care and services increase in countries with ageing population, great importance was placed on information pertaining to the health status of older people. Furthermore, a report on the Changing Age Structure in the Southeast Asia Region (SEAR) (WHO/SEARO, 2002) indicated that with the increasing proportion of older people, causes of morbidity and mortality in SEAR countries have shifted towards a greater incidence of chronic and degenerative conditions. Globally, chronic conditions are considered to be the health care challenge of this century. The incidence and cost of these conditions are rapidly escalating and are responsible for

60% of the global disease burden (Sullivan, Weinert and Cudney, 2003). In Thailand, approximately 50% of older people were suffering from chronic diseases (National Statistical Office 2007).

Some countries are beginning to design programs in which clients participate in their care, and health care workers are facilitating education, support and the skills to assist those with chronic illness to manage their conditions (Harrison et al. 1996, Cahill 1998, Eales et al. 2000, Lorig 2001, Hansen et al. 2002, World Health Organization, 2002). If chronic illnesses are not properly managed, they will become the most expensive problems faced by health care systems worldwide. Improving care for people with chronic conditions requires a shift from the acute care model to a long- term care model (WHO, 2002).

The ultimate outcome of system is improving quality of care which was delivered to persons with HTN. The quality of care for persons with HTN will be good due to control BP and reduce cardiovascular risk. This will be benefit for hypertensive older persons and health care organization and society as a whole. To translate verified therapies and interventions into routine practices and to measure changes of the health of the population are difficult (Roberto & Carol, 2007). The delivery of HTN in older persons care needs the components that lead to achieve the health outcome.

Thailand have specific and precise national policies for the elderly, Developing strategies in the preparation for quality aging, strategies for social security for older persons, strategies for management systems and personal development at the national level, and strategies for conducting research for policy and program development for elderly support, will be integrated into the Second National Plan for

Older Persons (2002-2021). In Thailand, the committee of the National Commission on Aging, has developed long-term policies and measures for the elderly (1997-2011). These include providing general knowledge to older people on life changes and environmental adjustment as well as health care (WHO/SEAR, 2004).

In Thailand, health care services are classified into five levels: (Thailand Health Profile 1997-1990) the self-care level, which includes the enhancement of people's capacity to provide self care and make decisions about health; primary health care level, organized by the community for providing services related to health promotion, disease prevention, curative care and rehabilitation; the primary care level, which includes medical and health services provided by medical and health personnel at various health units i.e. community health posts, health centers, and health centers of municipalities, out-patient departments of public and private hospitals at all levels and private clinics; the secondary care level, which is provided by medical and health personnel with various degrees of specialized facilities; and tertiary care, which is provided by medical and health personnel. Furthermore, specific care for the elderly is provided by both government and non-government organizations (NGOs), such as government monthly subsidies, free medical care, elderly identification cards, day care services, mobile services, emergency shelter services, and assistive devices.

In Thailand, there are two national plans fro improving the health status of the elderly. The First Thai National Long-term Plan for the Elderly was implemented in 1982. Long-term policies and measures for the elderly were developed for providing, with dignity, general knowledge, physical and mental care for individuals and communities, raising public awareness of responsibility for the elderly, promoting capable elderly in society, and creating a setting in which they are empowered. A

policy for improving elderly health was also added in the Eighth Plan for older persons. The Thai government has provided free health care programs for the elderly, particularly the health service under the Ministry of Public Health which covers more than 80% of all health care in the country.

The budget for welfare and health care services has increased gradually. While the statistics showed that diseases generally remained under control during the past decade, it is forecast that chronic illness leading to disability will increase in the future (Sutthichai and Srichitra, 1997). Therefore, the Thai government has started implementing the Second National Plan for Older Persons (2002-2021). The strategies in the plan include five areas: preparation for quality aging; promoting well-being in older persons; security for older persons; management systems and personnel development at the national level, and conducting research for policy and program development and support. The measures listed in this plan will be the guidelines for both government organizations and NGOs in planning elderly care activities. The Thai government has many geriatric training programs for the elderly, care-givers and health care providers, which provide knowledge and skills in elderly care for all groups of people.

The most active health personnel in the field of elderly care in Thailand are nurses (Sutthichai and Srijitra, 1997). There are many nursing schools providing education programs to nursing students at bachelor and master levels. Moreover, nurses and other health professionals are trained in basic rehabilitation skills for the disabled elderly. There are also some training programs for care-givers and family members conducted by nursing schools, medical colleges and other organizations such as the Faculty of Nursing, Chiang Mai University, the Department of Public

Welfare, the Thai Red Cross Society, some provincial hospitals, private hospitals and the Senior Citizens Society Association. In addition, the Thai Society of Gerontology and Geriatric Medicine, a member of the

For Thailand, the future needs in relation to care of the elderly are proposed as follows:

Development of a primary health care system focusing on elderly participation;

Establishment of a health care system for the chronically ill elderly, with a proactive holistic approach;

Strengthening the referral system and supporting systems;

Enhancing the cooperation between health care services and social services;

Extending and strengthening elderly clubs, volunteers, family systems and civil societies;

Extending and supporting the system for home care services;

To address Thailand's rapidly aging society, a special insurance scheme was developed for older person in 1992 which had introduced health care card, and in 2001 the government started a new scheme for the entire country in order to cover those who previously had no coverage. The new scheme, called the 30-baht healthcare scheme, has the user pay 30 baht per visit, with additional costs covered by the government. In addition, accessibility to health centers has also been improved (Kamnuansilpa and Wongthanavasu, 2002). These programs aim to improve elderly health in general.

Hypertension management mostly focuses on the reduction of blood pressure. As demonstrated in findings from randomized controlled trials, the reduction of blood pressure is a cost-effective strategy for decreasing the risk of strokes, heart attacks, and mortality (Falaschetti, Chaudhury, Mindell, & Poulter, 2009; Pannarale, 2008). This section presents current knowledge regarding epidemiology of HTN related to aging, the pathology of hypertension in older persons, complications of hypertension in older persons, diagnosis and classification of hypertension, blood pressure measurement in hypertensive older persons and medical treatment and therapy for hypertensive older persons.

Epidemiology of Hypertension Related to Aging

Hypertension is now a major public health problem that affects approximately one billion individuals worldwide (Chobanion et al., 2003), and as many as 7.1 million deaths per year may be attributable to HTN (WHO, 2002). It is expected that people with hypertension will increase to 1.56 billion by 2025 (Kearney et al., 2005). It is widely acknowledged that BP and the prevalence of HTN increases with age in adults living in western societies (Burt et al., 1995; Rodriguez, Labarthe, Huang and Lopez-Gomez, 1994). Therefore, as the population ages, the prevalence of HTN will increase even more. The prevalence of HTN in various regions of the world has been widely reported (Kearney, Whelton, Reynolds, He, 2004; Kearney, 2005; Pereira, Lunet, Azevedo and Barros, 2009). The prevalence rates differ significantly throughout countries, presenting higher values in Europe (44%) than in the United States (28%) (Ong et al., 2007; Wolf-Maier et al., 2003). There was two times in the African Americans greater than the respective rate in the white Americans, whereas more serious complications are presented in the first origin group (Ong et al., 2007).

The results of previous studies indicated that HTN prevalence in Greece older person aged more than 65 years old was 69% (Skliros, Papaioannou and Sotiropoulos, 2002), and 65% to 76% of in aged over 60 years Spanish older persons (Banegas et al., 2002; López et al., 2002). The prevalence of HTN in most Asian groups is similar to that of non-Asians (Pereira, Lunet, Azevedo and Barros, 2009). In the older Australian population, the prevalence of HTN increased significantly from 45.4% to 52.2% from 1992–1994 to 1997–2000 (Chua, Rochtchina and Mitchell, 2005) whereas in Japan, the prevalence rate for subjects 60 years old and above is estimated to be more than 60% (Ong, Cheung, Man, Lau, and Lam, 2007).

The prevalence of HTN increases with advancing age to the degree of which over one-half of the people aged 60–69 years old and 75% of those aged 70 or more years old are affected (Burt et al., 1995). In older Americans, HTN is the most important risk factor for cardiovascular disease, with estimates that 69% of patients with an incident myocardial infarction, 77% with incident stroke, and 74% with incident heart failure have antecedent HTN (Lloyd-Jones et al., 2009). In addition, HTN is a major risk factor for incident diabetes mellitus (ADA, 2003) and chronic kidney disease (Lloyd-Jones et al., 2009). In 2005, HTN was the primary cause of death for 57,356 Americans, and a primary or contributory cause for more than 300,000 of the 2.4 million total deaths that year (Lloyd-Jones et al., 2009). Moreover, HTN death rates increased 25.2% from 1995 to 2005, and the actual number of deaths rose by 56.4%, in part reflecting increasing numbers of older Americans and high prevalence of HTN at older age (Lloyd-Jones et al., 2009). In 2009, total direct and indirect costs attributable to hypertension were estimated to be $73.4 billion (Lloyd-Jones et al., 2009).

Hypertension is a major risk factor for coronary heart disease, heart failure, cerebrovascular disease and chronic renal failure (D'Agostino et al., 2008; Klag et al., 1996; Stokes, Kannel, Wolf, D'Agostino and Cupples, 1989). The risk is 3 times greater for cerebrovascular diseases and 3.5 times greater for heart failure (Kannel, 2003) The high incidences of these diseases and the high prevalence of HTN in most developed and developing countries make it the single most important cause of cardiovascular morbidity and mortality (Ezzati, Lopez, Rodgers, Vander and Murray, 2002), found higher in men than in women until the age of 55 years old, however it is slightly higher in postmenopausal women (Kannel, 2003). Diastolic –related with age-blood pressure presents the higher values in the age of 55 years old, while systolic blood pressure continues to increase with advancing age. Systolic blood pressure is one of the most powerful indicators for cardiovascular risk in older person (Kannel, 2003; Nash, 2006). However, it is difficult to estimate the individual contribution of systolic and diastolic blood pressure in cardiovascular risk and this is mainly attributed to the fact that in the majority of the cases diastolic and systolic BPs are strongly correlated (Nash, 2006). Systolic BP increase in older person is accompanied by the increase of the differential BP that constitutes an additional risk factor for cardiovascular disease even in individuals that do not present high levels of BP (Kannel, 2003).

Presently, the number of older adults in Thailand continues to increase. In 2010, the older population numbered about 8 million individuals, or 11.9% of the entire Thai population; in 2030, the elderly population will reach 17.16 million, or one fourth of the total Thai population (Foundation of Thai Gerontology Research and Development Institute, 2009). The causes of this increase are greater life expectancy

and a reduced mortality rate. In the past, Thailand had a high fertility rate, but currently the rate is reduced. Additionally, the elderly dependency ratio has increased. In 2005, the ratio was 100 workers to 16 older persons; in 2025, the ratio will increase to approximately 100 workers to 31–32 older persons (Bureau of Empowerment for Older Persons, 2007).

In Thailand, it was estimated that 1.50 million (of a total population of 66 million) have HTN in adults (Committee Researches National, 2006), with diagnosed in more than half (51.6%) in all older person (Porapakkham and Plattara-Achachai, 2007), with the mortality rates of 25.4 per 100,000 persons (Bureau of Health Policy and Strategy of Ministry of Public Health, 2008). The Disease Control Department studied revealed that HTN was rapidly increasing among older persons with the rate of 55.23, 56.01 to 56.60 percent in 2006, 2007 and 2008, respectively and among those had complication 7.6, 11.68 to 18.07 percent (Annual Epidemiology Surveillance Report, 2007-2009). In 2008, HTN was the most common disease that caused hospital admission for older Thai people (Foundation of Thai Gerontology Research and Development Institute, 2009). Additionally, the rates of in-patient HTN per 100,000 of the Thai population increased from 778.1 in 2007 to 860.5 in 2008 and 981.48 in 2009 (Bureau of Policy and Strategy, 2009). Moreover, HTN has a pronounced impact on older persons' health and is a primary disease that causes stroke, cardiovascular disease, and renal failure (Ostchega, Dillon, Hughes, Carroll, & Yoon, 2007). Moreover, HTN can impact patients' quality of life, limit their daily activities, cause psychosocial problems (e.g., anxiety, depression, and stress), and increase health care costs (Centers for Disease Control and Prevention, 2007; Vierck & Hodges, 2003).

In sum, this highlights, for other countries undergoing similar rapid epidemiological transitions, the importance of valid and representative data that allow the routine monitoring of the prevalence and management of hypertension.

The Pathophysiology of Hypertension in Older Persons

Age-associated increases in HTN prevalence derive from changes in arterial structure and function accompanying aging. Large vessels become less distensible, which increases pulse wave velocity, causing late systolic BP (SBP) augmentation and increasing myocardial oxygen demand. Reduction of forward flow also occurs, limiting organ perfusion. These undesirable alterations are enhanced with coronary stenosis or excessive drug-induced diastolic BP (DBP) reduction. Autonomic dysregulation contributes to orthostatic hypotension (a risk factor for falls, syncope, and cardiovascular [CV] events) and orthostatic hypotension (a risk factor for left ventricular hypertrophy [LVH], coronary artery disease [CAD], and cerebrovascular disease). Progressive renal dysfunction, because of glomerulosclerosis and interstitial fibrosis with a reduction in glomerular filtration rate (GFR) and other renal homeostatic mechanisms such as membrane sodium/potassium–adenosine triphosphatase, fosters HTN through increased intracellular sodium, reduced sodium–calcium exchange, and volume expansion. Microvascular damage contributes to chronic kidney disease (CKD) as reduced renal tubular mass provides fewer transport pathways for potassium excretion; thus older person hypertensive patients are prone to hyperkalemia. Secondary causes of HTN should be considered, such as renal artery stenosis (RAS), obstructive sleep apnea, primary aldosteronism, and thyroid disorders. Lifestyle, substances, and medications (tobacco, alcohol, caffeine,

nonsteroidal anti-inflammatory drugs [NSAIDs], glucocorticoids, sex hormones, calcium, and vitamins D and C) can also be important contributors.

Internal organs are deteriorated: for instance, deteriorated heart and coronary function, arteries are less flexible and clogged with more calcium. This cause occlusion at the end of artery increased by 1 percent, then BP increased for pumping more bloodstream circulated in the body sufficiently. It causes both systolic and diastolic BPs increased. Micro vascular becomes unhealthy and too fixable. Blood is carried throughout the body less, especially to the brain, heart and kidney which finally damage these significant organs (Thongcharoen, 2002). Regarding the pathophysiology of HTN in older persons was characterized by increased total peripheral vascular resistance, decreased compliance of large and medium-sized arteries, a tendency for a decrease in cardiac output and circulating blood volume, increased fluctuation of BP (BP) as a result of an age-related decrease in baroreceptor function, decreased blood flow, and dysfunction of auto regulation in important target organs, such as the brain, heart and kidney (Kaplan, 2002) due to chronic conditions that lead to severe and immediate disabilities and progressive disability of older people to care for themselves (Fried and Guralnik, 1997).

As humans age, the coronary arteries that supply blood to the heart muscle become progressively narrower (arteriosclerosis), resulting from the formation of a fatty plaque. This narrowing of the arteries is known as coronary heart disease. Hypertension places a great strain on the arteries and over time they become scarred an inelastic. Eventually this can lead to atherosclerosis, stroke, or a myocardial infarction. Congestive heart failure is brought about when the heart muscle becomes too weak to maintain an adequate cardiac output to meet the body’s demands for

oxygen. This usually results from the heart's being either overworked or damaged, often as result of HTN, atherosclerosis, or a myocardial infarction.

Complications of Hypertension in Older Persons

Hypertension is the major cause for severe complications. These complications are varied from high systolic and diastolic BP level, duration of illness, patients' self-management, appropriate medical treatment and other cardiovascular risk factors (Saengwatanaroj, 2001; Buranachitcharoen, 2003; Thai Hypertension Society**,** 2008). The complications include.

1. Congestive heart failure: high BP causes the left ventricle to work harder because of increased arterial pressure. Blood circulation has difficulty returning to the lungs and the right ventricle then works harder and finally causes cardiovascular conditioning.

2. Coronary heart disease: higher BP causes the artery walls to stiffen and thicken which causes abnormal blood circulation and possible occlusion. The abnormal artery may then cause clogs. Furthermore, hypertensive patients usually have cardiomegaly and less blood return to the heart, which will cause them to have a higher chance of dead myocardium than people with normal BP.

3. Stroke: Cerebral vascular rupture causes bleeding in the brain and patients will suffer infarction, paralysis, change in consciousness, or sudden death because their artery suffered from high pressure over a long period of time, which causes stiffness and loss of flexibility. Long-term high BP can cause artery rupture and damage to the brain.

4. Chronic kidney disease: Chronic HTN affects the artery walls in the kidney as they become thicker. Therefore, blood flow to the kidneys decreases and

becomes insufficient. These conditions cause kidney dysfunction in terms of eliminating waste and patients will eventually have kidney disease.

5. Retinopathy: HTN gradually causes deteriorated micro-vascular function in the eyes. This micro-vascular vessel rapidly becomes smaller overall and the optical nerve swells, which causes some blind points on the retina. Patients will have blurred vision with possible bleeding on the retina as deterioration may eventually leave the patients blind.

Clinical Assessment and Diagnosis

Measurement of blood pressure

Blood pressure should be accurately and reliably measured and documented. The diagnosis of hypertension should be based on at least 3 different BP measurements, taken on ≥ 2 separate office visits to account for the natural variability of BP and other factors that can affect BP. To confirm the validity and reliability of the measurement, at least 2 measurements should be obtained once the patient is comfortable and settled for at least 5 minutes. BP should be measured in the sitting position with the back supported, feet on the floor, arm supported in the horizontal position, and the BP cuff at heart level (Aronow et al., 2012). In the initial evaluation, BP should be measured in each arm, and the arm with the highest BP used for future BP monitoring. It is important to use an appropriately sized cuff with a bladder that encircles at least 80% of the upper arm circumference. An auscultatory gap, as defined by the period during which sounds indicating true systolic pressure fade away and reappear at a lower pressure point, is more common in the elderly and is associated with vascular disease. This is a common source of underestimating SBP in

the older person. In addition, there is another source of BP measurement in the older person, discussed in detail in the following section,

Pseudohypertension is a falsely increased SBP that results from markedly sclerotic arteries that do not collapse during cuff inflation (eg, "noncompressible"). Pseudohypertension occurs in 1.7% to 70% of the elderly (Anzal et al., 1996; Jaffe et al., 2000). Identification of pseudohypertension is necessary to avoid over treating high BP and should be suspected in elders with refractory HTN, no organ damage, and/or symptoms of overmedication (Gregory, Bakir and Oparil, 2002).

White-coat effect and white-coat HTN is more common in older person and frequent among centenarians. When assessing BP in the elderly, both the white-coat effect and white-coat HTN need to be considered, with prevalence rates between 15% and 25% (Trenkwalder et al., 1993). Elderly individuals tend to exhibit more white-coat effect (i.e., transient BP elevations when in a medical environment) than younger individuals (Rasmussen et al., 1998; Manios, 2008). White-coat HTN, a term reserved for those not on antihypertensive medication but with persistently elevated office BP (> 140/90 mm Hg) together with a normal daytime ambulatory BP (< 135/85 mm Hg), is also more common in the elderly and is more frequent among centenarians (Jumabay et al., 2005; Wiinberg et al., 1995).

Ambulatory BP monitoring is recommended to confirm a diagnosis of white-coat HTN in patients with persistent office HTN but no organ damage. Ambulatory BP monitoring is indicated when HTN diagnosis or response to therapy is unclear from office visits, when syncope or hypotensive disorders are suspected, and for evaluation of vertigo and dizziness (Trenkwalder, 1996). Ambulatory BP

monitoring is also important for avoiding overtreatment in the elderly with white-coat HTN and also to ensure diagnosis and treatment of those with masked hypertension (Wing et al., 2002).

Out-of-office BP readings in older person, particularly home BP measurements is strong due to potential hazards of excessive BP reduction in older people and better prognostic accuracy versus office BP. Home BP monitoring alone may be as useful as clinic measurements for treatment decisions in the elderly (Broege, James and Pickering, 2001). Home BP measurement has disadvantages that need to be considered before advising elderly patients to purchase and take their BPs at home (Aronow et al., 2012). Although automatic electronic devices are more convenient and easier to use, aneroid manometers with a stethoscope require manual dexterity and good hearing. Additionally, the automated devices available for self-measurement all use the oscillometric technique where small oscillations in cuff pressure are used to identify SBP mean, and DBP (O'Brien, Beevers and Lip, 2001; Yarows, Julius and Pickering, 2000). Unfortunately, oscillometric techniques cannot measure BP in all patients, especially patients with arrhythmias, such as rapid ventricular rate in a patient with atrial fibrillation, an arrhythmia common among the elderly patients with hypertension (O'Brien, Beevers and Lip, 2001).

Finally, there can be substantial observer error in reporting of self-measured BP values (Myers, 2001). Diaries completed by patients recording BP over time lack reliability. Erroneous reporting occurs more often in cases of uncontrolled BP and heart rate, conditions more common in older person (Johnson et al., 1999). Memory-equipped devices and/or tele-monitoring are strategies to overcome

unreliable reporting, but both strategies add to non-reimbursable costs of providing care for elderly patients.

Classification of Hypertension (Chobanian et al., 2003)

The Seventh Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC-7) has defined criteria for normal BP, prehypertension, and stage 1 and 2 HTN (Table 1).

Table 1 Classification of blood pressure for adults

Blood pressure classification	Systolic blood pressure (mm Hg)	Diastolic blood pressure (mm Hg)
Normal	< 120	and < 80
Prehypertension	120-139	or 80-90
Stage 1 hypertension	140-159	or 90-99
Stage 2 hypertension	>160	or > 100

Source: Chobanian, A.V. et al. (2003). Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertension*, 42. 1206–1252.

Blood Pressure Measurement in Hypertensive older persons

Blood pressure measurement

Reliable, calibrated BP measurement equipment is essential for HTN management. The BP should also be measured with the patient standing for 1 to 3 minutes to evaluate for postural hypotension or HTN. The general recommended BP goal in uncomplicated HTN is < 140/90 mm Hg. For complicated HTN (diabetes or chronic kidney disease), is < 130/80 mm Hg. However, this target for older person hypertensive patients is based on expert opinion rather than on data from randomized

controlled trials (RCTs). It is unclear whether target SBP should be the same in patients 65 to 79 years of age as in patients >80 years of age.

Accurate measurement of BP is essential to classify individuals, to ascertain BP–related risk, and to guide management. The auscultatory technique with a trained observer and mercury sphygmomanometer continues to be the method of choice for measurement in the office, using the first and fifth phases of the Korotkoff sounds, including in pregnant women. The use of mercury is declining, and alternatives are needed. Aneroid devices are suitable, but they require frequent calibration. Hybrid devices that use electronic transducers instead of mercury have promise. The oscillometric method can be used for office measurement, but only devices independently validated according to standard protocols should be used, and individual calibration is recommended. They have the advantage of being able to take multiple measurements. Proper training of observers, positioning of the patient, and selection of cuff size are all essential. It is increasingly recognized that office measurements correlate poorly with BP measured in other settings, and that they can be supplemented by self-measured readings taken with validated devices at home. There is increasing evidence that home readings predict cardiovascular events and are particularly useful for monitoring the effects of treatment. Twenty-four-hour ambulatory monitoring gives a better prediction of risk than office measurements and is useful for diagnosing white-coat HTN. There is increasing evidence that a failure of BP to fall during the night may be associated with increased risk (Pickering, et al., 2005: 144).

Technique for Measuring Blood Pressure (Elliott, 2007: 215-219)

The proper technique for measuring BP accurately is typically taught very early during medical training but is seldom followed thereafter. The most recent expert panel assembled by the American Heart Association has published recommendations about how to measure BP that differ from earlier guidelines, but the general principles remain.

1. Use a properly calibrated manometer. Classically, pressure has been measured using millimeters of mercury (mm Hg), but recent concerns about the potential long-term risks of exposure to elemental mercury have led to its prohibition in the workplace, and proliferation of anaeroid devices, some of which lose accuracy over time and with use (O'Brien, 2002). All manometers that do not contain mercury should be calibrated at least annually against a mercury column.

2. Use the appropriate sized cuff for the arm. Six commonly available BP cuffs exist (Table 2). Using a small cuff on a large arm typically results in an overestimation of BP. In obese or muscular persons, the large adult-size cuff is required for all those with an arm circumference at the mid-humerus over 38 cm. In very large individuals, a "thigh" cuff is often necessary.

3. Deflate the cuff at no more than 2 to 3 mm Hg per second. The proper deflation rate depends on the heart rate of the subject. To assure that the measurer will have the opportunity to hear at least one Korotkoff sound per 2 mm Hg gradation of the mercury column, the deflation rate should be 2 mm Hg/second if the heart rate is 60 beats/min. If the heart rate is 90 beats/min, a deflation rate of 3 mm Hg/second is appropriate.

4. Take multiple BP readings at each encounter, and (when appropriate) several encounters before recommending BP lowering. In research, the average of the second and third readings in a given position has been traditionally taken as “the BP for that visit,” but some guidelines now mandate that individual BP measurements be recorded, and the lowest of these (in any position) used as “the BP for that visit.”

5. Consider BP readings taken outside the medical office (particularly when obtained with a properly calibrated instrument, discussed below), but (in most cases) rely most heavily on properly taken BPs in the healthcare provider’s office. Nearly all data linking BP measurements to adverse clinical sequelae (including myocardial infarction, stroke, and death) were gathered in the medical office setting.

Blood pressure is subject to a large degree of intrinsic variability. Several steps can be taken to minimize this variability, including:

1. Take multiple measurements, especially when the pulse is irregular (eg, in the setting of atrial fibrillation). This is necessary because ventricular filling pressures vary with diastolic filling time. BP variability is especially pronounced in older persons with primarily or exclusively systolic BP evaluations (for which the coefficient of variation is two to three times higher than for diastolic BP).

2. Center the bladder of the cuff over the brachial artery with its lower edge within 2.5 cm of the antecubital fossa. This leaves enough space so that the stethoscope head can be applied inferiorly without touching the cuff (and generating background noise).

3. Have the subject rest silently and comfortably (with back support if seated) for at least 5 minutes before the measurement.

4. Have the subject abstain from drinking both caffeine-or alcohol containing beverages and tobacco use within 30 minutes before a BP measurement.

5. Question the subject regarding the most recent meal or evacuation of bowels or bladder. Distended abdominal viscera can be not only painful, but also routinely cause BP to be elevated, presumably because of anxiety or pain. Older persons typically have a lower BP postprandially; thus, it is often necessary to inquire about and record when the last meal was eaten.

6. Assure that the subject's arm is supported at the level of the heart. Both muscular work (of tensed muscles around the elbow) and hydrostatic pressure caused by a "dangling arm" increase the pressure necessary to obliterate the pulse and typically overestimate systolic BP.

7. Listen over the brachial artery with the bell of the stethoscope and minimal pressure exerted on the skin. If there is a lasting indentation where the stethoscope's head was placed, the systolic BP was likely overestimated and the diastolic BP underestimated because too great a pressure was exerted over the artery.

8. Determine the "peak inflation level" by performing a BP measurement palpating the radial artery, *before* applying the stethoscope. For all subsequent BP measurements, inflate the cuff 20 mm Hg higher than the pressure at which the palpable pulse at the radial artery disappeared.

Routinely determining the peak inflation level minimizes the risk of missing an "ausculatory gap," which typically signifies "stiff arteries" and a poorer prognosis (Pickering, et al., 2005).

1. Attempt to avoid "terminal digit preference." Traditionally, BP measurements have been made to the nearest 2 mm Hg (the typical "hash marks" on a

mercury sphygmomanometer). Theoretically, in a large collection of systolic and diastolic BP measurements, there should be an equal number of readings ending in 0, 2, 4, 6, or 8. Comparing the actual distribution of terminal digits with the 20% expected for each one typically reveals a significant preference for 0 in inpatient medical services, where BP readings are typically precise to ±10 mm Hg.

2. Measure BP in both arms at the initial visit and use the arm with the higher BP thereafter if the difference is greater than 10/5 mm Hg. In such situations, there is often concern about coarctation of the aorta or Takayasu's arteritis or Moyamoya disease, but seldom is this seen on ultrasonography or other confirmatory testing. BP measurement in a leg should be done for all young hypertensives at the first visit and may be useful in older people as a peripheral indicator of aortic insufficiency ("Hill's sign").

3. Assure that the equipment used to measure BP is in good working order. Many sphygmomanometers (even in hospitals) are in poor repair and should be cleaned, calibrated, and fitted with non leaking tubes and properly sized cuffs.

Elderly patients are more likely to have white coat hypertension, isolated systolic HTN, and pseudohypertension. BP should be measured while seated, 2 or more times at each visit, and the readings should be averaged. Blood pressure should also be taken in the standing position routinely because older person may have postural hypotension. It is frequently noticed by patients on arising in the morning, after meals, and when standing up quickly (Pickering, et al., 2005: 155).

Home Blood Pressure Measurements

During the last 30 years, several types of BP measuring devices have appeared that are convenient, accurate, and inexpensive. In general, devices that use a cuff around the upper arm (rather than the wrist or finger) are preferred.(Parati, Asmar and Stergiou, 2002) Even people with hearing difficulties, hand– eye dyscoordination, and/or short-term memory deficits can use semiautomatic devices with large digital readouts and printers. Some believe that such a device should be provided to every person with elevated BP; others are concerned that, in some patients, taking home BPs can become an unnecessary obsession. Home BPs have not yet been widely used in clinical decision-making in clinical trials,(Staessen et al., 2004) so some believe they should not be used routinely to make diagnostic or therapeutic decisions.(Yarows, Julius, and Pickering, 2000) Home BP readings are typically lower than measurements taken in the traditional medical environment, even in normotensive subjects.(Cappuccio, 2004) Compared to readings taken in the medical office, home readings are better correlated with the extent of target-organ damage and the risk of future CV events (Perloff, et al., 1989; Imai,et al., 1996; Bobrie, el al., 2004) and even mortality.(Ohkubo, et al., 1998) Home readings can be helpful in evaluating symptoms suggestive of hypotension, especially if the symptoms are intermittent or infrequent. During treatment, reliable home readings can lower costs by substituting for multiple visits to healthcare providers.70 Persons who routinely measure BP at home probably have a better prognosis than do those who do not, because of both selection bias (they tend to be more interested in their BP than are those who refuse to purchase and use a home BP machine) and social support (when a friend or spouse becomes involved in BP measurement and overseeing pill

taking and appointment-keeping behaviors). While several studies show benefit of supplementing office BP measurements with home readings, many of the factors that contribute to BP variability are difficult to control in the home environment, including intrinsic circadian variation, food and alcohol ingestion, exercise, and stress. Most current guidelines that consider home BP monitoring suggest it as a complement to office and ambulatory BP monitoring, especially because of its low cost, versatility, and ability to be performed repeatedly and persistently over the long term (Chobanian, et al., 2003; O'Brien, et al., 2003; Pickering et al., 2005). The available evidence supports the notion that the prognostic value of HBPM is equal to or higher than that of OBP, a method which, at present, remains the point of reference for prognostic stratification and clinical decision making in HTN (Table 3).

Ambulatory Blood Pressure Monitoring

Extensive research has led to a better definition of the role of automatic recorders that measure BP frequently over a 24-hour period during a person's usual daily activities, including sleep (O'Brien, Beevers,and Lip, 2001). Practitioners in the US rarely used these devices before April 1, 2002, when the Center for Medicare and Medicaid Services authorized reimbursement (currently approximately $45 to $60 per session) for ambulatory BP monitoring only when the diagnosis of "white coat HTN" was verified (Tunis, et al., 2001).The advantages and disadvantages of ambulatory BP monitoring (ABPM) in research have been well documented, and ABPM results have been correlated with clinical outcomes (Staessen, et al., 1999; Kario, et al., 2001; Bur, et al., 2002; Clement, et al., 2003). Several expert panels have defined the special situations in which ABPM is particularly useful (O'Brien, et al., 2003; Pickering et al., 2005). In the US, monitors using either the auscultatory or an oscillometric

technique are small (<450 g), simple to apply and use, accurate, relatively quiet and tolerable, and powered by two to four disposable batteries. Ambient noise can confuse monitors that use auscultatory techniques, even if R-wave gating is used. Oscillometric monitors require that the subject keep the arm straight and flaccid during the measurement. A diary of the subject's activities enhances the interpretation of ABPM readings, but such diaries are not always completed. Because ABPM makes it feasible to measure BP during sleep, interest in circadian variation of HR and BP has been reawakened. Most normotensives and perhaps 85% of hypertensive have at least a 10% drop in BP during sleep, compared with the daytime average. An average nocturnal BP of < 125/80 mm Hg has been proposed as a better threshold value than the relative difference (White and Larocca, 2003). Although blacks and older person typically have less prominent "dips,"(Staessen, et al., 1997) the risk of CV events (and proteinuria in type 1 diabetics (Lurbe, 2002)) increases among those with a nocturnal "nondipping" BP or pulse pattern (Staessen, et al., 1999; Verdecchia, et al., 1998; 2001; 2002). However, several Japanese studies have shown that older person persons with more than a 20% difference between nighttime and daytime average BPs ("excessive dippers") suffer unrecognized ischemia in "watershed areas" (of the brain and other organs) during sleep if their BP declines below the autoregulatory threshold (Kario, et al., 2001; 2002; 2003). Compared to either office or home BP readings, ABPM correlates better with the prevalence and extent of target-organ damage in hypertensives (White, 2003). Diagnosing "masked HTN" or "white coat normotension" is possible only with ABPM. These people have normal office BPs, but elevated ABPM readings, with target-organ damage and a poorer prognosis similar to that usually seen in sustained hypertensives (Bobrie, et al., 2004). The link

between ABPM data and clinical outcomes has been consistently demonstrated in Italy (Verdecchia, et al., 2001; Kario, et al., 2002), in Ohasama, Japan (Ohkubo, et al., 1997), and in both resistant hypertensives91 and those with isolated systolic HTN (Staessen, 1999). In the Office versus Ambulatory Blood Pressure Study, 157 of 1963 patients suffered a CV event, after having ABPM performed. After adjustment for the usual CV risk factors, and even office BPs, the 24-hour ABPM data were significant, independent predictors of outcomes. In each category of office BP, those with 24-hour average systolic BPs < 135 mm Hg had about twice the CV event rate as those with lower systolic BPs on ABPM (Clement, et al., 2003). "White-coat HTN" is the name given to the phenomenon in which about 10% of the hypertensive population has substantially higher BPs in the medical office than outside it. Diagnosis of "white-coat HTN" can be made most definitively using ABPM. The pathophysiology and psychological "reasons" for it are unknown (Pierdomenico, et al., 2000). The prognostic significance of "white-coat HTN" is also uncertain. Since individuals with it have a higher prevalence of CV risk factors and subclinical disease than normotensive controls, it may be a precursor to sustained HTN and may benefit from treatment (Moser, 2001). Conversely, prospective studies show a lower risk of CV events among "white-coat hypertensives" than those with sustained HTN (Perfoff, et al., 1989; Verdecchia, et al., 1997; 2005), and little benefit from drug treatment in the Systolic HTN in Europe trial (Fagard, et al., 2000). Monitoring the effects of treatment would be expensive, if ABPM sessions were repeated even annually.

In sum, there are 3 commonly used methods for measuring BP for clinical purposes: clinic readings, self-monitoring by the patient at home and 24-hour ambulatory readings. Self-monitoring is generally performed using electronic devices

that work on the oscillometric technique. Although standard validation protocols exist, many devices on the market have not been tested for accuracy. Such devices can record BP from the upper arm, wrist, or finger, but the arm is preferred. Twenty-four-hour ambulatory monitoring is the best predictor of cardiovascular risk in the individual patient and is the only technique that can describe the diurnal rhythm of BP accurately. Ambulatory monitoring is mainly used for diagnosing HTN, whereas self-monitoring is used for following the response to treatment. Different techniques of BP measurement may be preferred in certain situations (Ogedegbe and Pickering, 2010: 583).

There are several features of HTN in older persons which make the monitoring of BP out of physician's office particularly important in this population. First, the prevalence of WCH is higher in older person hypertensive patients than in younger hypertensive patients (Staessen, et al., 2000). Second, older persons are characterized by a more pronounced BP variability compared with younger persons (Mancia, et al., 1989), which by itself may be associated with an elevated cardiovascular risk (Pringle, et al., 2003), especially when such high variability is related to an excessive BP surge in morning hours (Kario, et al., 2003). Third, in older persons, autoregulation of the circulation of target organs during excessive BP reduction is impaired and excessive antihypertensive medication targeting OBP can cause symptomatic hypotension, which may worsen treatment compliance.

In this study, the researcher will use the office BP measurement technique to monitor BP during 3 months period of implementing intervention and follow up in next 3 months.

Medical Treatment and Therapy for Hypertensive older persons

Hypertension is categorized as a kind of symptom with cardiovascular, neuroendocrine and metabolic disorders. The Medical Treatment for this group of patients, therefore, does not focus on reduction of BP only, but is also concerned about the reduction of risk factors for cardiovascular disease or any other complications. The treatment of HTN includes both pharmacologic treatment and non-pharmacologic treatment.

Pharmacologic treatment

Pharmacologic treatment is drug therapy used by a physician for hypertensive patient who are unable to control their BP, or patients with severe high BP who cannot wait for non-pharmacologic treatment without risking fatality. In choosing the type of medication, a physician considers the patient's age, medication efficiency and side effects, price, the patient's style of living and other diseases or complications. It is possible, therefore, to combine various types of drugs for treating some cases. The initial antihypertensive drug should be started at the lowest dose and gradually increased, depending on BP response, to the maximum tolerated dose. An achieved SBP <140 mm Hg, if tolerated, is recommended except for octogenarians (see special populations in the following text). If the BP response is inadequate after reaching "full dose" (not necessarily maximum recommended dose), a second drug from another class should be added provided the initial drug is tolerated. If there are adverse effects or no therapeutic response, a drug from another class should be substituted. If a diuretic is not the initial drug, it is usually indicated as the second drug. If the antihypertensive response is inadequate after reaching full doses of 2 classes of drugs, a third drug from another class should be added. When BP is >20/10

mm Hg above goal, therapy should be initiated with 2 antihypertensive drugs. However, treatment must be individualized in older person. Before adding new antihypertensive drugs, possible reasons for inadequate BP response should be examined. On average, older person patients are taking > 6 prescription drugs, so polypharmacy, nonadherence, and potential drug interactions are important concerns.

The major types of medication first chosen to control high BP include:

1. Diuretics ("water pills"). Diuretics increase the kidneys'excretion of salt (sodium) and water, decreasing the volume of fluid in the bloodstream and the pressure in the arteries. Diuretics are the oldest and most studied antihypertensive agents.

2. Beta blockers. This class of medications decreases the vigor of the heart's contractions. By decreasing the force used to pump blood into the arteries, the medications decrease BP. In addition to lowering BP, beta blockers have multiple beneficial effects (including prolonged life) in patients with coronary artery disease, patients who have had myocardial infarction (heart attack), and many patients with congestive heart failure (CHF).

3. Calcium channel blockers. All subgroups of calcium antagonists are effective and well tolerated in lowering BP. They are of demonstrated benefit for the prevention of stroke in older person patients with systolic HTN

4. ACE inhibitors. ACE inhibitors are safe and effective in lowering BP. They are particularly effective in reducing morbidity and mortality due to heart failure.

5. Angiotensin-receptor blockers (ARBs). This is a new class of medications, which are similar in some respects to ACE inhibitors. Like ACE inhibitors, they help dilate arteries, lower BP and make it easier for the heart to pump blood throughout the body. Also, like ACE inhibitors, they can improve congestive heart failure symptoms, decrease the chances of future hospitalizations for heart failure, and prolong life.

Other drug classes may be used in addition to combinations of the above medications, when BP hasn't reached a set-goal level. These drug classes may include:

1. Direct-acting vasodilators. The medication hydralazine more or less directly dilates the arteries in the body and lowers BP. Hydralazine is sometimes used in combination with isosorbide dinitrate to treat patients with congestive heart failure.

2. Centrally acting agents. These antihypertensive agents affect the central nervous system (brain) to decrease BP. Such medications include clonidine and methyldopa. Because these drugs act directly on the brain, they occasionally cause drowsiness, depression, and other symptoms.

3. Alpha blockers. These medications prevent muscle contractions in smaller arteries and reduce the effects of naturally occurring body chemicals that narrow blood vessels.

Nonpharmacologic treatment

Nonpharmacologic treatment is an integral part of treatment of older person patient with HTN. On the basis of substantial randomized evidence, albeit acquired in mainly people between the ages of 60 and 80 years, lifestyle changes are

recommended as first-line therapy for people with mild HTN unless there are associated cardiovascular risk factors or evidence of target organ damage which place them at high risk (Fagard, 2004). There is strong evidence that maintaining an ideal body weight, engaging in regular aerobic activity for a minimum of 30 minutes per session on most days of the week, restricting sodium intake to 2.4 g (or 6 g of sodium chloride) per day, and limiting alcohol intake to two drinks per day will reduce BP (Table 4) (Cappuccio, et al., 1997; Whelton, et al., 1998; Cushman, et al., 1998; Westhoff, et al., 2007). Evidence that lifestyle modification reduces cardiovascular disease outcomes in patients with HTN is less strong. Most trials of lifestyle modification have not lasted long enough or did not enroll a sufficient number of subjects to provide adequate data on clinical outcomes in patients with HTN. In 10- to 15-year follow-up studies of the Trials of HTN Prevention I and II (TOHP I and TOHP II), which tested non pharmacologic interventions in reducing BP in middle-aged subjects with pre HTN, it was shown that there was a 25% reduction in risk for cardiovascular disease in the groups randomized to sodium reduction (Cook, et al., 2007). Further, combining a high potassium diet with sodium reduction was associated with lower cardiovascular risk on follow-up than either intervention alone (Cook, et al., 2009). A landmark study of lifestyle modification in older person is the Trial of Non pharmacologic Interventions in the Elderly (TONE) (Whelton, et al., 1998), in which 975 subjects with HTN aged 60 to 80 years were randomized to one of four groups, that is, sodium reduction, weight loss, a combination of both, or usual care. Study participants were taking a single antihypertensive agent at the time of randomization, and 90 days after the first group-intervention session, weaning from the antihypertensive medication was initiated, with a goal of discontinuing the drug

altogether. TONE tested the hypotheses that sodium reduction and/or weight loss would result in reductions in BP and therefore the need for reinstituting antihypertensive therapy and cardiovascular events and death. Specifically, the primary end points for the study were the occurrence of any of the following after attempted withdrawal of the antihypertensive medication: high BP reading (SBP > 190 mm Hg or DBP > 110 mm Hg at one study visit; or mean SBP > 170 mm Hg or mean DBP > 100 mm Hg at two sequential visits; or mean SBP > 150 mm Hg or mean DBP > 90 mm Hg at three sequential visits), resumption of antihypertensive drug, myocardial infarction (MI), stroke, congestive heart failure (CHF), angioplasty, or coronary bypass surgery. In TONE, a goal of -4.5 kg was set for the participants in the eight-loss and combination arms, using a combination of diet and increased physical activity. Average weight loss among participants in the weight-loss arm was 3.5 kg and 47% achieved the goal of -4.5 kg after 9 months; 39% of subjects in the weight-loss arm did not experience an increase in BP or a need to reinstitute BP-lowering medications for 30 months after discontinuing antihypertensive drugs. Weight loss, best achieved by regular physical activity and avoidance of excessive caloric intake, was well tolerated and was not associated with adverse events. Weight loss is thus encouraged among obese or overweight older person patients, and achievement and maintenance of the ideal body weight should be targeted. Owing to greater salt sensitivity in older person, older age predicts treatment success in sodium intervention trials for the treatment of HTN (Grobbee and Hofman, 1986). In TONE, the goal of sodium reduction to less than 80 mmol/d (1.8 g/d) was achieved by only 36% of the study participants in the sodium-reduction arm. Despite this, 72% of those assigned to a low-sodium diet had their BP controlled to less than 140/90 mm Hg, and

38% of these patients remained off antihypertensive medications for 30 months.45 In another study performed in the United Kingdom, lowering dietary salt from 10 g/d to less than 5 g/d for 1 month reduced urinary sodium excretion by 83 mmol/d and lowered supine BP by 7.2/3.2 mm Hg in a population of older person normotensive (n= 518) and hypertensive (n = 529) subjects.46 Dietary sodium restriction has been shown to decrease BP and improve large elastic-artery compliance in older person persons with HTN (Gates, et al., 2004), consistent with the concept that dietary sodium may contribute to large-artery stiffness in these patients. In addition to reduction of sodium, a diet rich in fruits, vegetables, and low-fat dairy products, with limited cholesterol and saturated fat is advocated for patients with HTN (the Dietary Approaches to Stop Hypertension, or the DASH diet) (Apple, et al., 1997), except for those with CKD, for whom the increased potassium and protein may be harmful. Dietary modification, although difficult for most persons, is an important adjunct to medical HTN treatment. Regular aerobic exercise, consisting of a minimum of 30 minutes of interval training on a treadmill done thrice weekly, has been shown to be a useful adjunct to the treatment of HTN in older person (Westhof, et al., 2007). Adherence to the 12-week exercise program in this study lowered SBP by 8.5 mm Hg, DBP by 5.1 mm Hg, and pulse pressure by 3.2 mm Hg on 24-hour ambulatory BP monitoring among older person patients with HTN, and this was well tolerated by the study participants. A position paper from the American Society of Hypertension advocates a comprehensive lifestyle intervention, that is, a combination of diet (reduced salt intake, high potassium intake, and moderate alcohol consumption, with limited cholesterol and saturated fat) and physical activity and weight loss to substantially lower BP and improve BP control, particularly among older person

patients with HTN.53 A 6-month lifestyle intervention has been shown to decrease BP by 4.2/4.9 mm Hg among older person subjects with borderline elevations of DBP.54 This beneficial effect on BP was achieved in the context of significant (-2.1 kg) weight loss but without significant reduction in urinary sodium excretion. Lifestyle interventions have been found to be safe and well tolerated among older person. Furthermore, the adoption of healthy lifestyle changes and weight reduction has been associated with other benefits, namely, improvement of lipid profile, glucose tolerance, cardiovascular risk, and well being of patients.

Table 2 Degree of BP reduction achieved with lifestyle modifications in older person patients with HTN

Intervention	Definition	Degree of SBP/DBP(mmHg)Reduction
Dietary sodium restriction	Limit sodium intake to < 80 mmol/d	3.4 to 7.2/1.9 to 3.2 (Whelton, et al., 1998; Cappuccio, et al., 1997)
Increased physical activity	Aerobic activity lasting 30 min done thrice weekly	8.5/5.1 (Westhoff, et al., 2007)
Weight reduction	Weight loss of 4.5 kg	4/1.1 (Whelton, et al., 1998)
Limiting alcohol intake	Limit alcohol intake to < 2 drinks per day	1.2/0.7 (Cushman, et al., 1998)

Source: Acelejado, M.C. and Oparil, S. (2009). Hypertension in older person. Clinical Geriatric Medicine, 25, 397.

Blood pressure control in older persons

Definition of blood pressure control

The definition of high blood pressure has changed over time and differs between guidelines proposed by expert bodies. Variation in the definition of hypertension influences the number of people classified as having uncontrolled

hypertension (Burt et al., 1995). At variance from previous guidelines, evidence is now available from an outcome trial (HYVET) that

The issue of goal BP for patients with isolated systolic hypertension, which is common in the elderly, remains a matter of debate. Clinical trials in the treatment of isolated systolic hypertension have thus far not achieved a BP goal of less than 140 mm Hg. The best evidence to date in lowering BP to less than 150 mm Hg in elderly patients is the Systolic Hypertension in the Elderly study, which showed a 38% reduction in strokes at a 10-year follow-up period (Perry et al., 2000). However, the current consensus is a BP goal of less than 140/90 mm Hg (Chobanian et al., 2003). In addition, the JNC-7 (Chobanian et al., 2003) recommends a goal blood pressure (BP) of less than 140/90 mm Hg in the general population, and in patients with diabetes mellitus and chronic kidney disease (CKD), a lower goal of less than 130/80 mm Hg is recommended. The guideline in Japan for HTN in older individuals recommends different BP targets for different age groups. In general, older subjects are divided into three groups, based on physiological deterioration and the high prevalence of cardiovascular complications and other comorbidities: the ‘young-old’ (65-74 years of age), the ‘old-old’ (75-84 years of age) and the ‘oldest-old’ (≥ 85 years of age). According to this classification, the target BP for the young-old, as well as for nonelderly patients, should be SBP < 140 mm Hg and DBP < 90 mm Hg. The recommended BP for the old-old patient with mild HTN (140-159/90-99 mm Hg) is also < 140/90 mm Hg. In old-old and oldest-old patients with SBP ≥ 160 mm Hg, cautious treatment is required, with an intermediate target BP of < 150 mm Hg, and a final target of < 140 mm Hg if tolerated. Elevated BP in the elderly—either combined systolic/diastolic increases cardiovascular risk. In combined hypertension,

cardiovascular risk increases as systolic BP climbs above 140 mmHg or if the diastolic pressure rises above 90 mmHg or falls below 65 mmHg following therapy (Kaplan, 2001). However, On the whole (American Diabetes Association, 2012; ESH/ESC, 2007; Mancia et al., 2009), there is sufficient evidence to recommend that SBP be lowered below 140/90 mm Hg in all hypertensive patients and below 130/80 mm Hg in diabetic patients and chronic kidney disease or in patients at very high cardiovascular risk (previous cardiovascular events).

As above reasons, BP control, defined according to the recommendation as below 140/90 mm Hg in all hypertensive patients and below 130/80 mm Hg in diabetic patients and chronic kidney disease, was used for evaluation a primary outcome of this study.

Prevalence of blood pressure control in hypertensive older persons

Blood pressure control is significantly associated with advanced age (Lloyd-Jones et al., 2002) and is common among older people in developing countries, and may rise further during the demographic and health transitions. It is a major determinant of geriatric population (Prince et al., 2012).

Epidemiologic data show that blood pressure control according to a recent evaluation from the National Health and Nutrition Examination Survey (NHANES) found that blood pressure (BP) control increased from 27% in 1988–1994 to 50% in 2007-2008 (Egan, Zhao and Axon, 2010). This is similar to the results from other studies indicating that 40–60% of hypertensive patients have satisfactorily controlled BP in the community (Berlowitz et al., 1998; Ong et al., 2007). This percentage of BP control was greater than both the results of the whole GOOD survey (Kjeldsen et al., 2008) stating less than 30% success for the control of BP in treated hypertensive

patients across 12 European countries including Turkey and with other previous studies conducted across Europe (Volpe et al., 2007; Wang, Alexander and Stafford, 2007; Wolf-Maier et al., 2004).

Suboptimal BP has been identified as the third ranked factor for disability-adjusted life years (Ezzati et al., 2002). In a recent study, (Lawes, Vander Hoorn and Rodgers, 2008) it was estimated that 14% of deaths and 6% of DALYs lost globally were caused by non optimal levels of BP. Older hypertensive patients were more likely to have an elevated SBP and a low DBP, both of which were related to a loss of article compliance and had an increase in left ventricular mass and a decrease in peripheral resistance (Black, 2003). Especially, the older persons 60-79 years of age, a community-based epidemiological analysis showed a significantly higher prevalence of cardiovascular disease than those with optimal and normal BP (Ogihara and Rakugi, 2005). Moreover, the suboptimal control constitutes the greatest attributable risk for death, and has been calculated as responsible for 62% of cerebrovascular disease and 49% of ischemic heart disease worldwide (WHO, 2002). Since HTN is a major attributable cause of stroke, coronary heart disease, heart failure, atrial fibrillation and end-stage renal disease, having 41% of HTN not on treatment and 66% uncontrolled is unacceptable. Although the awareness, treatment and control of HTN has improved substantially since the 1970s, leading to an age adjusted 50% and 60% reduction in mortality from stroke and coronary heart disease, respectively, much remains to be improved in the management of HTN. Strengthening primary care to improve hypertension management is necessary for primary prevention (Prince et al., 2012). Therefore, it is clear that HTN which is unidentified, untreated and/or uncontrolled places a major burden on public health and medical care systems.

Therefore, HTN in older person must be treated with particular caution, and in recognition of abovementioned pathophysiological characteristics of high BP in this age group (Ogihara and Rakugi, 2005). However it can be beneficially reduced with both non- and pharmacological treatment (Chobanian, et al., 2003). Despite the demonstrated benefits of effective available treatment strategies (Chobanian, et al., 2003; Williams, et al., 2004) and the existence of many clinical practice guidelines (Lloyd-Jones, Evans & Levy, 2005). However, the degree of BP control had poorly controlled BP in clinical practice worldwide (Borzecki, Oliveria, & Berlowitz, 2005; Gupta, et al., 2011; Kearney, Whelton, Reynolds, Whelton, & He, 2004; Lexin & Tiemin, 2006; Wang, Alexander, & Stafford, 2007; Wolf-Maier, et al., 2004). Based on the Seven Report of National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC-7), indicated that 50% had discontinued their medications and 66% were unable to achieved BP control (Chobanion, et al. et al., 2003). Duggan and others (2001) found that only 14% of older people with HTN had the condition detected, treated and adequately controlled by general practitioners in the United Kingdom. In Thailand, the number of older Thai persons who identified as achieving BP target was only 21.7 to 37.3% (Aekplakorn, 2010). Therefore, control of HTN remains a significant problem for a large group of older persons.

Factors related to blood pressure control

In high-risk patients, small improvements in blood pressure control are associated with large reductions in cardiovascular risk. National and international guidelines for the management of hypertension therefore now recommend rigorous blood pressure targets. Despite extensive clinical evidence, the delivery of care for hypertension remains unsatisfactory Hypertension is underdiagnosed and

undertreated, and recommended target blood pressures are rarely achieved. Physicians appear reluctant to make changes to treatment, which would lead to more effective use of antihypertensive drugs. Overwhelming evidence supports the benefit of optimal blood pressure control in patients with hypertension (Gordon and McInnes, 2004). A number of factors have been attributed to failure to achieve controlled blood pressure. The factors can be arbitrarily divided into patient-related factors and provider related factors (Wang and Vasan, 2005).

Patient-related factors

Sociodemographic factors: Sociodemographic factors associated with inadequate blood pressure control have been recently reviewed (Bosworth and Oddone, 2002). The prevalence of BP control is higher in women than in men (Hyman&Pavlik, 2001; He et al., 2002; Yang, Jung and Choi, 2009). Similarly, previous studies revealed that female patients were significantly associated with uncontrolled hypertension (Agyemang, et al., 2006: 877; Kadir, Mohamed, & Yusof, 2009: 21). With regard to marital status, a hypertensive individual with a spouse is more likely to manifest with higher control of BP (Choi et al., 2003). Low household income can also influence BP control (Kotchen et al., 1998). Typically, BMI is associated with BP control; those having a higher BMI display a lower level of BP control (Suter et al., 2002). Hypertensives with concomitant diabetes (Esposti, et al., 2004; Kadir, Mohamed, and Yusof, 2009), cardiovascular disease and chronic kidney disease manifest with lower BP control (Roca et al., 2005; Dean et al., 2007; Sarafidis et al. 2008; Yang, Jung and Choi, 2009). Accordingly, the Global Cardiometabolic Risk Profile in Patients with hypertension disease (GOOD) survey (Kjeldsen, Naditch-Brule, Perlini, Zidek and Farsang, 2008) suggested that metabolic

syndrome and diabetes mellitus were important characteristics associated with poor blood pressure control. Thus, more focus is needed on controlling hypertension in people with high cardiovascular risks and diabetes mellitus for secondary prevention.

Furthermore, the prevalence of BP control is higher in those with regular physical activity (Yoon, 2002; Song et al., 2005) and reduced sodium consumption (Kojuri & Rahimi, 2007), when BP has been measured more recently (Muntner et al., 2004) and in patients receiving regular drug treatment for their hypertension (Han, 2006; Dean et al., 2007).

According to Aekplakorn et al. (2008), numerous Thai patients with hypertension—especially hypertensive patients living in the rural area, southern regions of Thailand—are unaware of lifestyle modifications that can control high BP. Some older people have an increased difficulty achieving optimal BP control because of various factors, such as deteriorating health, limitations in physical activity, health beliefs and attitudes, low socioeconomic status, financial difficulties, low educational background, low skills in managing illness, a less healthy diet, smoking, less regular exercise, no strategies to release stress, loss of regular treatment, and a lack of seeking health knowledge. Using monosodium glutamate and consuming alcohol are also common eating behaviors among Thai older persons with HTN. These numerous factors may contribute to poor control of HTN (Jiriyasin, 2000; Kumjainuk, 2005; Kunjeat, 1999; Sarat, 2000; Tabthong, 2005; Institute of Geriatric Medicine, 2006) ; (Sakcomeduang, 2009).

Medical adherence: Nonadherence to prescribed hypertension therapies is extremely common (Fashey, Schroeder & Ebrahim, 2005; Wang & Vasan, 2005). Studies based on pharmacy refill records have reported a correlation

between medication adherence and achieving control (Steiner, Koepsell, and Fihn, 1988). Among surveyed Hispanic and African American patients, 74% of hypertensive patients who reported being adherent had adequate blood pressure control, compared with 48% of patients who reported low adherence. (Berlwitz, et al., 1998; Morisky and Ward, 2001). Among a small sample of patients with inadequately controlled hypertension on a triple drug regimen, simply monitoring drug-taking behavior resulted in 50% of patients achieving blood pressure control, presumably through improved adherence (Stephenson, 1999). In the previously noted study, patients who thought they were on too many medications and were less compliant also reported more side effects (Fincke, Miller and Spiro, 1998). Presumably because of side effects, several large observational studies have found better adherence for angiotensin II receptor blockers and angiotensin-converting enzyme (ACE) inhibitors than for diuretics and h blockers, especially in newly diagnosed patients. (Bloom, 1998; Monane, Bohn and Gurwitz, 1997; Caro, Speckman and Salas, 1999; Wannemacher, Schepers and Townsend, 2002) However, results of randomized trials suggest that this difference between medication classes is inconsistent and at times nonexistent (ALLHAT, 2002; Flack, Novikov and Ferrario, 1996; UK Prospective Diabetes Study Group, 1998). Thus, prescribing more pills at lower doses may improve compliance with antihypertensive medications by minimizing side effects, though this remains to be proven. Finally, a wide range of patient health beliefs, including those related to self-efficacy (the belief in one's ability to follow a recommendation), perceived benefits of therapy, and health perceptions also predict adherence (Miller, Hill and Kottke, 1997).

Provider related factors

Clinical inertia or therapeutic inertia: Patients with hypertension usually require two or more different antihypertensive medications to attain target BP (Chobanian et al., 2003). The failure of health care providers to intensify medication regimens despite patients not achieving treatment goals is often referred to as "clinical inertia" or "therapeutic inertia." The term clinical inertia describes the phenomenon whereby clinicians do not initiate or intensify therapy appropriately for patients with chronic medical conditions such as hypertension, diabetes, and dyslipidemia (Phillips, 2001). There are currently three possible explanations for clinical inertia. First, clinicians appear to overestimate the amount of care that they actually provide, believing that they are more aggressive than they actually are. Second, clinicians may lack training on how to reach target blood pressure levels, and their practice settings may not be sufficiently focused on providing the necessary structural supports. Tied in to this lack of training may be the provider's lack of self efficacy. Finally, clinicians use reasons to avoid intensification of therapy. For patients with hypertension, physicians sometimes adopt await until next visit approach in response to patients' reports of rushing in, being under excess stress, or forgetting to take their medication that morning. One of the largest hypertension studies suggested that a primary factor may be physician complacency with elevated BP levels (Ren, Kazis and Lee, 2002). Accordingly the only existing activity in some areas was a community curative care for people with chronic diseases, but inadequate practice organization, described jointly as 'clinical inertia', which is implicated as a reason with a failure to achieve treatment goals in HTN (Nelson, et al., 2011; Philips et al., 2001). In terms of the process of care that

hypertensive patients receive, characteristics of both the patient, health professional and the healthcare system in which they are given their medical care have been implicated in poor BP control (Fashey, Schroeder & Ebrahim, 2005). Several studies indicated that the management of HTN was poor for older people, particularly in primary care (Duggan, Eccles, Steen, Jones, and Ford, 2001; Crnney, Barton, and Walley, 1998; Hooker, Cowap, Newson, and Freeman, 1999). Duggan et al. (2001), for example, found that only 14% of older people with HTN had the condition detected, treated and adequately controlled by general practitioners in the United Kingdom. Plausible explanations for this situation include doctors' attitudes towards anti-hypertensive treatment (Duggan, Ford, and Eccles, 1997), imprecise, vague and complex guidelines (Duggan, Eccles, Steen, Jones, and Ford, 2001; Tu, Mamdani, and Tu, 2002; Sequeira, Jassim, Damahori, and Mathur, 2002).

Access to health care

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 hypertensives 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; Keeler, Brook and Goldberg, 1985; Shea, Misra and Ehrlich, 1992). Less has been written about how system or practice related access factors influence blood pressure control. In a

survey of ambulatory hypertensive patients, inconvenient office hours and prolonged office waiting times were perceived as barriers to blood pressure control, but the actual association with blood pressure control was not examined (Coleman, Lott and Sharma, 2000). Even hypertensive patients receiving free care have identified long appointment waiting times as a barrier to follow-up care (Mouton, Beaudouin and Troutman, 2001).

Patient-provider interaction

If patients and providers can establish effective personal and working relationships that transcend socioeconomic, racial, and cultural differences, care could be optimized (Cooper, Hill and Powe, 2002). Successful interactions can only help patient adherence to medical regimens. In addition, how the provider views the relationship will influence how he or she communicates with the patient. Further, patient adherence will impact the provider's perception of the patient (Borzecki, Oliveria and Berlowitz, 2005). Kaplan, Greenfield and Ware (1989) analyzed baseline data obtained as part of a randomized trial to increase hypertensive patients' participation during office visits. Poorer initial blood pressure control was associated with lower levels of patient control during the interview (asking fewer questions or making fewer attempts to direct the flow of conversation), less effective information seeking by the patient, and less frequent exchanges of opinions by physician and patient.

Two comprehensive reviews have looked at patient physician communication patterns (Hall, Roter and Katz, 1988; Stewart, 1995). One concluded that providers who gave more information had greater patient satisfaction and adherence (Hall et al., 1988). Providers who enlisted patient input and took a less

controlling role had greater patient satisfaction but not adherence. A more recent meta analysis looked at communication interventions and patients' health outcomes as defined by physiological status, functional status, psychological distress, and symptoms (Stewart, 1995). Of the 21 included studies, most involved patient-directed interventions and measured the impact of the intervention on the patient's psychological distress and symptoms. Only 2 used any physiological measures, of which only one, the Kaplan study mentioned above, was a randomized trial (Kaplan, et al., 1989). Stewart (1995) found that the practice of asking patients about their understanding of the problem, concerns and expectations, and extent of functional impairment reduced patients' psychological distress and symptoms. Patients who felt encouraged to ask questions and allowed to have a full discussion of their problems had reduced psychological distress, symptom scores, and blood pressure. The physician's ability to give clear information, provide emotional support, and share in the decision making also improved outcomes.

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; 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 (Cabana, Rand and Powe, 1999; Cranney, Warren and Barton, 2001; Miller et al., 1997).

Intervention to improve blood pressure control in Hypertensive Older Persons

Regardless predictors related to BP control, which should be considered when designing interventions to help elders achieve better hypertension management. The previous community-based, prospective cohort study (Yokokawa, Goto, Sanada, Watanabe and Yasumura, 2009; 2010) revealed low success rates in achieving goal blood pressure in Japanese hypertensive patients. Therefore, effective actions are required to improve the treatment of elevated blood pressure to prevent cardiovascular complications. It has been reported that 50-60% of hypertension could be prevented by increasing physical activity, maintaining an ideal body weight, and regulating the diet, especially salt intake (WHO, 2004). Also, lifestyle modifications can lead to a mild decrease in blood pressure and allow a reduction in the dose of antihypertensive medications (Ogihara et al., 2009; Neaton, et al., 1993). Several interventional studies (Sacks, 2001; Neter, Stam, Kok, Grobbee and Geleijnse, 2003) have demonstrated the effectiveness of lifestyle modification and maintenance of an ideal body weight in controlling hypertension. However, few studies in Japan have examined the relationship between achievement rates of goal blood pressure levels and healthy lifestyle characteristics among hypertensive patients at the community level. The effects of interventions to improve BP control among older people with HTN in community are explored in an earlier integrative review and have been reported as follow:

Educational intervention

Health education, defined as the transference of health information from healthcare providers to patients, was a component of many interventions. However, the interventions in this category had group health education as their primary component, the majority demonstrating beneficial effects. Patients' knowledge about HTN and medications is important in achieving higher adherence rates (Roumie, et al., 2006). This study delivering an educational session showed a significant increase in For patients who received provider education, alert, and patient education, the relative risk for reaching systolic BP goal compared with those who received provider education only was 1.33 (CI, 1.06 to 1.65; P=0.013; correlation coefficient, 0.063) (Roumie, et al., 2006). Moreover, a community pharmacist and nurse-based education intervention that empower patients to take charge of their BP, educated them about dietary and exercise approaches to lower BP, and communicated BP measurements and opinion leader-endorsed and guideline-based recommendations to family physicians conferred a 5.6 mm Hg greater reduction in systolic BP after six-month compared with usual care (McLean, et al, 2008).

Behavioral intervention

Behavioral approaches have been used to assess health behavior and improve BP control and functional status. Particular, exercise program for older people leads to significant improve aerobic and strength fitness, increased lean mass, and reduced general and abdominal obesity. It is mean decreases in SBP (-0.56) and DBP (-0.55) (Kerse, et al., 2005), but not statistical significance. One RCT study examined the effects of aerobic and resistance training revealed that improved in DBP among exercisers (4.5 mm Hg, p=.001), but not in SBP (-0.8 mm Hg, p=.67) (Stewart,

et al., 2005). There is increasing research interest in evaluating the use of complementary and alternative, low-tech and low-impact forms of exercise. Stone walking is an example of one such activity. Cobblestones mat walking improved physical function including balance measure (p=.01), chair stands (p<.001), 50-foot walk (p=.01) and reduced BP (p=.01) to a greater extent than conventional walking in older adults (Li, Fisher, & Harmer, 2005). Similarly, a six-month community-based walking intervention was effective in increasing hypertensive older people exercise self-efficacy (p=.002) and reducing and mean changing in systolic BP (p=.002) (Lee, Arthur & Avis, 2006).

For stress management intervention, the researcher used audiotape for 20-minute at home and trained their subjects for 8 consecutive weeks according to a standard protocol. After 8 week, they were collected data in systolic HTN and medication elimination group of older people revealed that SBP decreased 9.4 (SD = 11.4) and 8.8 (SD=13.0) mm Hg in relaxation response and control groups, respectively (both p <.0001). After medication elimination, patients in the relaxation response group were more likely to successfully eliminate and antihypertensive medication (p =.03) (Dusek, et al., 2008).

Educational and behavioral intervention

The district nurse takes greater appointments, dispersing information, and providing other support measures, would have positive effects on the BP, weight, and waistline measurement readings, the results demonstrated the importance of improved follow-up of treatment. A visit was made to the district nurse and physician resulting in significant improvement was noted in BP readings for intervention groups. Systolic BP decreased in average 16.5 mmHg in the intervention group and

17.8 in the control group (p<0,001). Diastolic BP decreased 7.5 and 9.5 respectively (p<0.001). No significant differences were noted between the groups (Blomqvist, M., Berglubd, B., & Sonde, L., 2006)

Health education and training program aims specifically to increase understanding and to motivate lifestyle change (Fernadez, S, et al., 2008). Two studies conducted interventions comprising education and lifestyle intervention, with limited reported effect on BP control. Both additional group patient education and lifestyle modified counseling improved compliance or BP control significantly better than conventional care. One randomized control trial targeted older people with HTN in senior center-based community to improve their HTN care (Fernadez, S, et al., 2008). Changes in DBP were significant at 2-month follow-up for both the intervention (5.6±11.2 mmHg, p = .02), but were not statistically different between groups. Reduction in SBP was statistically significant in experiment group (p = .004) including increase in medical adherence (26%) and vegetable intake (23%). Particularly, a nurse-administered behavioral intervention include perceived risk of HTN and knowledge, memory, medical and social support, patients' relationship with their health care provider and so on by home visiting and phone call, enhanced medication adherence increased by 9 percent in the behavioral group (Bosworth, et al., 2007).

From the above mentioned, hypertensive management program should be multifaceted, tailored to meet the needs of the patient. They need to concurrently simplify lifestyle modification and the dosage regimen and take into consideration the patient perspective. Multiphase intervention strategies are also needed to consider patient considerations from biological, sociological and psychological perspectives in

order to address variables that can have an impact of inadequate BP control. Extensive theory development is needed to assist and enhance current understanding of the complexities of lower BP, older people preferences and actions specific to control BP and to help guide the development of theoretical models that can be used in applied research. To achieve this, using nursing theoretical framework to underpin studies are needed that examine older people with HTN lower BP.

In terms of future studies, careful preliminary work is needed when developing and testing complex interventions and thought needs to be given as to how their individual and combined effects are measured (Campbell, 2000).A side from definitive RCTs examining the effects of self-monitoring and allied health professional led care (pharmacist and nurses), there is also a paucity of evidence in terms of computer-based clinical decision support systems in HTN and how adherence-enhancing strategies influence subsequent BP control (Ebrahim, 1998). An economic evaluation of delivering organized care to hypertensive patients should accompany future studies. Lastly, none of the included randomized control trial attempted to manage HTN in the context of overall cardiovascular risk. Future studies need to be congruent with HTN guidelines that recommend treatment and control of BP in combination with multi-factorial risk reduction (Ramsay1999).

Healthcare professionals address these challenges to develop evidence-based interventions. It is likely that an increased focus on the specialized needs and care priorities of older people would improve health outcomes by placing their unique needs on the health agenda. This is a significant level for investigation of interventions and strategies to improve the care of older people. In order to determine best practice nursing care confidently, clinicians need to be able to draw on a body of

evidence that reflects system, provider, patient and caregiver outcomes, particularly cost-effectiveness and quality of care indicators.

The literature reviewed in Thailand during 1980 to 2005 from 77 studies reported that various interventions established in both hospital-based and community-based care aim at improving BP control and behavioral changes among adult and older persons (Netnarongporn, 2008). Regarding the effective HTN approach, regular follow-ups over an extended period of time with frequent visits in order to promote a long-term BP control are recommended (Handerson, et al., 2003; Sacco, et al., 2004). Nurse led care may be a promising way of improving control in patients with HTN, with the majority of randomized control trials being associated with improved BP control, but these interventions require further evaluation (Glynn, Murphy, Smith, Schroeder, & Fahey, 2010).

A multicomponent proactive nursing program based on the Chronic Care Model

As hypertension is a progressive disease involving atherosclerosis and increased disability and greater frequency of exacerbations, the strategy of optimal pharmacological management is important and can go a long way towards reducing symptoms and improving disability. However, BP control does not only require drugs but also need modify health behavior in order to avoid unnecessary risk factors. The quality of non-pharmacological and pharmacological treatment appears to be the most important contributor to adequate control BP (Farsang, Alfo¨ldi, and Barna, 2004). The health behavior adaptations that help patients stop smoking, and the advice and encouragement that enable them to understand and manage their disease are as important as ensuring that patients are on appropriate drug therapy. The non-

pharmacological strategies most frequently described to facilitate patients with HT improve quality of care is community-based care program.

A growing body of literature argues that an effective approach to meeting the needs of chronically ill patients is to improve the delivery of primary care stating that high-quality chronic illness care is difficult to achieve in primary care settings when the system centers on treating acute illnesses. Chronic illness care could be improved, it is believed, if delivery systems adopt a primary health care orientation emphasizing comprehensiveness of care and the overall health of the patient (Wagner, Austin, & Von, 1996; Bodenheimer, Wagner, & Grumbach, 2002; Grumbach & Bodenheimer, 2002). Currently, the policy of Ministry of Public Health has provided the strategy to build powerful communities services of the primary care for chronic illness such as diabetes, HTN, COPD etc. Therefore, nursing service in community is an important area to deliver HTN care service for older persons with HTN.

The chronic care model (CCM) is a framework for managing chronic illness such as diabetes, HTN, etc., facilitated by planning and coordination among care providers in helping people with HTN to plat informed roles in managing their own care (Wagner, Austin, Davis et al., 2001).This model was developed in the United States in 2002 for primary care of people with chronic illness because these group received service from the family physician and community nurse (Bodenheimer, Wagner, & Grumbach, 2002). The components of CCM (Figure 1) have been shown to be effective in improving certain process measures (Renders and Valk et al., 2001) including healthcare organizational support, community resources and policies, delivery system design, decision support, clinical information systems, self management support, and productive interaction.

Healthcare Organizational Support: a concept that directs the culture of the practice as well as leadership of the system. The ideal practice has a culture where optimal management of chronic illness and practice improvement are key values (Piatt and Orchard, 2006). In addition, in the ideal practice, leadership is committed and visibly involved, to support change and quality improvement, and creates incentives for providers and patients to improve care and adhere to evidence-based practices. A critical role of leaders is to set up the expectations, make quality a priority, and provide the resources to support chronic care and improve the programs. There is a strong evidence to emphasize the importance of organizational support for improvement of the outcomes (Bonomi, Wagner, Glasgow & Vonkorf, 2002). When a system is created and dedicated to the improvement of chronic illness care, system elements highlight the need for visible supports at all levels of the organization. Senior leadership needs to identify and communicate care improvement as important and promote transplant handling of errors and care problems to facilitate learning and system improvement (Wagner, et al., 2001).

This study is supported from the Chief of Health Center of primary care unit for improvement in chronic illness care. Therefore, the researcher invites him to involve in this study. He could provide the healthcare resource and facilitate health care proactive team to develop the quality of care.

Community Resources and Policies: Increasing the access to effective program in the organization through links with the relevant agencies is a cost effective way to obtain important services such as peer group support. Similarly, negotiations with other healthcare organization in the setting are often important to enhance long-term care and expand services or to gather data useful to the registry. For example,

ambulatory care organizations negotiate new relationships with neighboring hospitals or specialty groups to gain access to self-management class or nurse educator services, or with their commercial laboratories to download laboratory data for registry. Community linkages have been proved to be particularly useful in smaller organizations. On the other hand, effective programs identify and encourage patients to participate. Partnerships with community organizations should be formed to develop evidence-based programs and health policies that support chronic care (Siminerio, Piatt & Zgibor, 2005).

Thai culture places great value on the family, a prime resource of the patient, while health volunteers are commonly available to support patients in the community. Patients' daily living involves the collaboration of their families who acquire the skills and confidence to manage their chronic illnesses (e.g, diet control and referrals to community resources), and routinely assess problems and accomplishments (Wagner, 2000). This frequently requires a high degree of daily organization for the patient, family, and the environment as to how the physical environment must be controlled, how family resources can be made available, and how organized plans for action with community and external agencies must be formulated to prevent and to manage potential medical crisis (Hinton-Walker, 1993).

Families need an understanding of the disease process and what to expect as the patient experiences continued decline in health. Family members may find themselves encumbered with new responsibilities as the patient becomes more dependent. Not all families are supportive, and as the dependence of patient increases, the family may become hostile or disengaged. Nurses may intervene by providing family members with information on how to help their loved one. However, 73.3% of

those family caregivers developed some forms of health problems (Ritteeveerakul, Kasemkitwattana, Asdornwised & Praditsuwan, 2006). Therefore, nurses should work collaboratively with family and other persons in community such as health volunteers to reduce stress, or to provide other support as needed. The health volunteer is an important health resource in the community who could support and help patients and families to cope with their problems. The support of the family or other people involved with the patients is crucial to successful recovery and changing heatlh behavior such as smoking cessation. The study of Sukantha and Sukantha (2006) found that health volunteers who were trained to intervene in smoking cessation by providing knowledge and discussing the benefits of quitting smoking could help smokers to quit smoking. The reason for the success of the program is the bonding between the community health volunteers and older persons. These people are from the same community so they share a common experience and brainstorm for possible solutions. Moreover, these health volunteers are people in the area so they can closely follow up easily that the smokers are undergoing the cessation program effectively and encourage the patients to maintain their effort in achieving their goals (Sukantha & Sukantha, 2006). In addition, they could promote independent activities by encouraging patients to undertake activities of daily living with decreasing support and assistance over time and to increase the opportunity of taking patients out to visit with groups of old friends or to organize social activities in the community (Donald, 1991). Mobilizing and utilizing patients' resources is a strategy of supporting patients to adhere their health behavior change and medication taking. This strategy may enhance the patient's motivation and maintain healthy behavior.

Self-Management support:

Self-management means an interactive, collaborative, ongoing process involving older persons with HTN and the educator. The self management group support to engage in the integrating health behavior changes by monthly which include smoking cessation, exercise, proper use of medication, low sodium and low fat diet eating, and no alcohol consumption. In addition, education provided at each individualized home visit on at least one aspect of self-management including address self-management goal to help them recognize the procedure of each behavior change. The effectiveness and essential components of self-management programs for HTN used tailored adjustments to meet individual patient needs, a group setting, feedback, and psychological services, and whether the intervention was provided by the patient's usual physician. Self-management interventions led to a statistically and clinically significant decreased systolic BP by 5 mm Hg and decreased diastolic BP by 4.3 mm Hg in older persons (Chodosh, Morton, Mojica, et al., 2005). Moreover, for chronic conditions, patients themselves become the principal caregivers. 16 People live with chronic illness for many years; management of these illnesses can be taught to most patients, and substantial segments of that management—diet, exercise, self measurement (e.g. using glucometers or bathroom scales), and medication use—are under the direct control of the patient. Self-management support involves collaboratively helping patients and their families acquire the skills and confidence to manage their chronic illness, providing self-management tools (e.g. BP cuffs, glucometers, diets, and referrals to community resources), and routinely assessing problems and accomplishments (Bodenheimer T, Wagner EH, Grumbach, 2002).

Self management support are used in this study in order to empower and prepare older persons with HTN in community to manage their health and health care more effectively self-management skill. The component of strategies as follow: 1) interactive group education 2) promoting caregiver capacity and 3) reinforcement by using incentive reward.

1. Interactive group education

Self-management education goes beyond traditional patient education by seeking to motivate patient behavioral change, enhance patient confidence, and provide problem solving skills to manage the day to day tasks in managing their chronic illness (Barlow, et al., 2002). Self-management education programs have sought to improve disease outcomes through improved adherence to medications, diet, and lifestyle; however, experts do not agree on what constitutes the essential elements of effective self management education. A systematic review of chronic disease self management programs in older adults reported modest but clinically important reductions of glycosolated hemoglobin (with an average reduction of 0.8%) and systolic BP (average reduction of 5 mm Hg) (Chodosh, et al., 2005). Counseling and behavioral interventions to improve low-density lipoprotein cholesterol (LDL-C), however, have produced smaller benefits, with mean reductions ranging from 3 to 7 mg/dL (Ebrahim, et al., 2006; Brunner, et al., 2007). Most self-management interventions target a single chronic disease and focus on disease specific outcomes (Chodosh, et al., 2005). The principles and methods of self-management support in chronic disease interventions are similar across disease states, suggesting that the benefits of a self-management intervention may extend beyond the intended targets (Bodenheimer, et al., 2002). Therapeutic interventions that can

improve multiple cardiovascular risk factors simultaneously would be particularly valuable in light of the growing prevalence of multi morbidity and synergistic relationship between risk factors.

The intervention may consist of self-directed educational material, lectures (i.e., a teacher-focused format) or group interaction (i.e., a learner focused format). Effective change in behavior occurs when learners actively interact with the content to be learned, with the teacher and with each other (MacKeracher, 2006). Small groups of fewer than 10 members allow for an ideal level of interaction. Westberg and Jason (2004) cite several compelling reasons for using small groups to promote learning. Learners are more likely to take ownership of their education and may be more engaged with the material. They can learn from each other in a supportive, nonjudgmental environment. They can both give and receive peer-oriented feedback. They can practice skills that can be applied later in real-life situations. Learners retain and transfer knowledge more effectively when they are able to practice what they have learned (Halpern and Hakel, 2003). Nurse as a facilitate group discussion that it is an interactive form of learner-centered education for groups where the learners discuss a specific topic and share their questions and knowledge with other group members. This allows learners to gather information from each other in a supportive environment where their culture, prior experience, and personal concerns are acknowledged and respected. People are more likely to change behavior when they feel comfortable in their surroundings, are actively involved in the educational process, and develop the ability to reflect on their own behavior. Focus group discussion creates a safe learning environment that supports adult learning. Once educators and learners are comfortable with the techniques, the process of

learning becomes engaging and dynamic for all involved (AbuSabha, Peacock and Achterberg, 1999). For hypertensive older person and their caregiver, such a model would help facilitate memory retention and a higher comfort level with future decisions related to control of BP.

2. Promoting caregiver ability

Caregivers were defined as persons or family members not associated with residential care or nursing home, cohabiting in a single dwelling during at least the nighttime hours and continuously assisting the participant or providing support for medical care. General responsibilities of caregivers included confirming medicine usage on a regular basis and observing abnormal conditions (Wilkinson, et al., 2004). Studies have shown that caregivers can be helped by a variety of interventions including information and case assistance, education for self-care and skills training, and access to other community services, such as respite care and support groups, as well as flexible workplace options (Toseland and Smith, 2002). Moreover, the movement toward the provision of health care into the home setting has altered the nature of the relationship between health care professionals, patients, and family caregivers. Previously, in the hospital arena, caregivers provided emotional support to patients while depending on the knowledge and skills of physicians and other clinical personnel to make competent medical choices and deliver high-quality care. In the home environment, caregivers and patients are now required to be more actively involved in the delivery of health care by assuming decision-making and case management responsibilities (Arras and Dubler, 1995).

Family members who are assuming these caregiving responsibilities are often uninformed about what to do and are emotionally involved

as well. This increases the risk, not only of significant caregiver burden, but of compromising the quality of care for the patient. There are two ways by which this problem can be addressed: (a) increase the availability of home health services, and (b) increase the caregiving competence of family caregivers. Both are important. However, even with increased visits from home health professionals, family members must still assume the bulk of responsibility for day-to-day care. Increasing caregiver competence requires training family caregivers in the skills they need to provide comprehensive care. Since family caregivers are assuming the same responsibilities as health professionals, their training should include the core elements of health professional training: information about the illness and about caregiving (Houts, et al., 1996). Small-group educational sessions with family caregivers show both improvement in caregiving knowledge and abilities and increased occurrence of preventive health behaviors (i.e., eating regularly, not drinking, not smoking, engaging in physical activity, and sleeping) (Burton, et al., 1997).

3. Reinforcement by using incentive reward

Reinforcement is a behaviorist principle that describes the relationship between a behavior or an action and the result of the action. There are two different types of reinforcement: positive and negative reinforcement.

3.1 Positive Reinforcement

Positive reinforcement occurs after a behavior and increases the likelihood of the behavior occurring again. It can be used very effectively in a variety of classrooms to create and enhance behaviors and learning (Catania 2001; Dinsmoor, 1992; Waller & Higbee, 2010). According to the principals of positive reinforcement, the idea is not to focus on the negative aspects of a person's

behavior but instead to focus on the positive aspects. Positive reinforcement can be summarized by three components (Gardner et al., 2009). First, positive reinforcement has a stimulus, which in education can be anything that is added to the group education environment that participant's desire. For example, praise, good grades, or a positive look may all be positive reinforcement. Second, the stimulus must be contingent on a behavior (or a response from the student). This component suggests that behavior has to be present before providing reinforcement. Third, positive reinforcement requires a link between the stimulus and the probability that future behavior will increase (Bucher & Manning, 2001). Therefore, positive consequences often occur when a particular stimulus-response pattern is reinforced or rewarded. In education, positive reinforcement occurs in many forms including concrete reinforcement, social reinforcement, and activity reinforcement. A concrete reinforcement is something tangible that can be seen, such as a sticker. A social reinforcement is a gesture from another person's response to a behavior; for example, giving high fives. Other examples include comments ("Good job"), written approval ("Super"), and expressions of approval (educator nodding head, smiling, and a pat on the back). Activity reinforcement might be an opportunity to engage in a fun activity.

3.2 Negative Reinforcement

Negative reinforcement occurs when a particular unpleasant stimulus is removed after a behavior, and this causes the behavior to increase as a result. For example, the beeping sound that occurs when a person starts a car is a form of negative reinforcement because the sound stops once the seatbelt has been secured. The unpleasant stimulus (beeping sound) is removed when the behavior occurs. As a result of this behavior modification, the behavior will naturally become

less dependent on the stimulus. That is to say, eventually a person simply secures a seatbelt without thinking about the warning sound. In terms of health education, this application of behavior modification is especially important for persons who have behavior problems. Negative reinforcement is often, mistakenly, equated with punishment. Punishment is defined as the application of an undesirable stimulus in order to reduce the chance of a behavior being repeated. Paddling students, or corporal punishment, is a well understood form of punishment. Negative reinforcement, however, is the removal of an undesirable stimulus in order to increase the probability of a behavior being repeated (Wheatley et al., 2009). For example, reinforcing students for using class time to do math work appropriately by removing five homework problems negatively reinforces the behavior of working effectively in class by removing the undesirable stimuli of a longer homework assignment. When teachers use negative reinforcement, desirable student behavior is increased or maintained in order to escape or avoid a stimulus (Bowen, Jenson, & Clark, 2004).

Several previous studies indicated the effectiveness of reinforcement to improve health outcome including

Fernald, Hou and Gertler (2008) conducted an incentive-based poverty alleviation program, Oportunidades, on BMI, blood pressure and select health behaviors in adults. The Oportunidades program combines a cash-transfer program with financial incentives for positive behavior in health, education, and nutrition, which conducted low-income, rural, Mexican adults. The result revealed BMI was lower in adults from intervention communities than in those from control communities, as was the prevalence of obesity and overweight. Adults in intervention communities had a lower combined prevalence of uncontrolled

hypertension when adjusting for all covariates. Mean systolic and diastolic blood pressures were significantly lower in the intervention communities after all covariates were included, and self-reported health outcomes were better.

Cueto-Manzano, Martinez-Ramirez and Cortes-Sanabria (2010) implemented the educational strategies comprising multiple interventions for patients, guided by health professionals (multidisciplinary teams including primary doctors, dietitians, nurses, social workers), and probably supported by self-help groups, may be very helpful in modifying negative lifestyle and dietary habits. Reinforcement of goals and group dynamics were performed every 3 months. After 6 months many of the negative lifestyle characteristics significantly improved. Only diabetic and hypertensive patients significantly improved the knowledge of their disease and adherence to treatment. Compared to baseline, all the groups significantly reduced body mass index and waist circumference. Additionally, diabetics and overweight/ obese patients significantly reduced blood glucose and increased GFR, and hypertensive patients significantly decreased systolic blood pressure and tended, Remarkably, all these changes were independent of drug treatment, because none of the therapeutic interventions that had been formerly prescribed by family physicians had been significantly changed by the end of the follow-up in any of the groups.

Bemelmans et al. (2004) determined the effects of a nutritional education program (1st year: three group sessions by a dietitian; 2nd year: one group session; 3rd year: additional focus on saturated fat; reinforcement by written nutritional messages annually) (intervention group; n=103) are compared with the effects of a posted leaflet containing standard dietary guidelines (control group; n=163). Participants had hypercholesterolemia and at least two other coronary heart

disease risk factors. After 3 years, regarding dietary intake, the intervention group had a lower intake of total and saturated fat and a higher fish and vegetables consumption during the study period ($p < .05$ for all).

Several previous studies revealed reinforcement have proven to improve BP. Klein and Artinian (2007) determined if home BP monitoring could improve BP control in a sample of 34 outpatient hemodialysis patients. The intervention group was educated on HTN, associated risks and BP self-care behaviors that could improve BP control. The author followed the participants weekly for 12 weeks to review BP logs and BP goals, offer positive reinforcement for goals met and problem solve if goals were not achieved. The findings indicated that home BP monitoring significantly lowered systolic BP ($p = .018$) in the home BP monitor group compared to the usual care group. No significant differences were found between groups in diastolic BP or fluid gains

Barnett et al. (2008) conducted a exploratory study to examine the effectiveness of a patient education program and reinforcement on fluid compliance. The initial educational session was followed by weekly 10 minute reinforcement sessions over a two month period where encouragement and positive reinforcement were given to patients to adhere to fluid restrictions. Maximum predialysis systolic BPs decreased from 220 mmHg to 161 mmHg. Limitations of the study included small sample size and lack of a control group. A likely explanation for these significant findings was the addition of weekly reinforcement to education which may have resulted in synergistic effects as compared to education alone.

Delivery System Design: this concept refers to the structure of medical practice which has to do with altering and creating a proactive team to

manage chronic illness (Fiandt, 2007). Non-physician personnel are trained to support peoples' self management arrange routine service tasks such as laboratory testing for older persons with HTN to detect complication, comprehensive geriatric health assessment and ensure appropriate follow-up. The team roles are defined and delegated tasks. Planned visits are used to provide care. Long-term is assured by the community care team. Regular follow-ups are ensured (Nutting & Dickinson, 2007). The healthcare team coordinated by NP designs their system of care. This team plan their care visits, collaborative their team practices and change their visit system.

Delivery system designs are used in this study in order to empower and prepare proactive team to provide nursing intervention for older persons with HTN in community. The component of strategies including 1) proactive home visit based on patient performance/health outcome achievement 2) health mentoring and 3) follow-up reminder system for ensuring follow up appointment.

1. Proactive home visit based on patient Performance/ health outcome achievement

The home visits of community nurses not only relieve handicapped individuals of attending clinics, but also offer an opportunity to assess the patients in their own environment and to see how they actually live. Moreover, it is especially convenient for the patients with hypertensive older persons to apply their learning to their daily life and to help them make full use of their own resources. The role of community nurses should be monitor of complications, treatment, and psychosocial support in order to be aware because patients appear to change sequentially through the various stages of disease progression (Niziol, 2004). To improve patients' health outcomes through community-based care, psychosocial

support must be tailored to patients' individual situations and disease stages to meet their need, and cannot be generalized. The benefits of community nurse-run home visits showed in improvements in physical and psychological health, and had the greatest effect on patient satisfaction with the care they received. A randomized trial of nurse-provided health and health behavior advice during home visits to older person people with HTN Nurse home visits are effective in reducing BP in hypertensive patients aged more than 60 years. This intervention significantly reduced SBP and DBP levels, with a mean reduction of 3.3 mm Hg and of 3.7 mm Hg, respectively (Garcia-Peña, 2001). In addition, a Cochrane review found improved clinical outcomes from nurse-run home visits for those with moderate chronic airways disease, but not severe disease (Smith et al., 2001). However, after 1 year, the benefits tended to diminish. Therefore, a community nurse needs to create a desire for information, strategies and resources from the primary care unit adapted to the patients' individualized circumstances. The process of home visits is used to support families in supervising positive health behavior changes and encouraging health volunteers in enhancing psychosocial support. In addition, it has been suggested that the role of the community nurse for hypertensive older person's care in the community setting should be expanded to incorporate being present at the hospital during the exacerbation condition. Thus, in order to achieve the goal of chronic care, community nurses who provide chronic care in community settings require key competencies, such as advanced communication abilities, physical assessment skills, behavior change techniques, patient education, and counseling skills. According to the transitional situation of Thai nursing, specialized nurses or advanced practice nurses are in short supply even in a tertiary hospital. In order to fill the gap in the shortage of

proficient health care providers in the community setting, the Thai Nursing Council has proposed a 4-month primary medical care training that was designed to allow the facilitators to acquire these competencies. Community health nurse will be trained to work with the community and to mobilize community resources. In addition, they will be trained to provide care within the patients' context and social network in the community in such areas as patient education, motivation strategies for health behavior change, rehabilitation, and assisting the patient and family to use the resources available to prevent complications. It is a major challenge facing the nursing profession in today's reactive economic climate to develop and promote proactive, innovative, and successful clinical nursing intervention strategies, based on sound theory, that are cost effective and efficacious in outcome. Therefore, a model in providing better care may be able to reduce hospital utilization by using nursing intervention which has the potential of shifting care out of the hospital to the home with better patient health behaviors.

2. Health mentoring

Efficacious, empirically based programs that are grounded in behavior modification and self management principles and that can be individually tailored are strongly recommended for implementation at the community level (Guide to Community Preventive Services, 2010). The use of volunteers as peer mentors is a popular, economical method to provide education and support to a variety of populations (Chambre, 1993). According to sociocultural and communication theories, people are more receptive to assistance when it is delivered by someone perceived as similar to oneself (e.g., of comparable age, background, and life experience; Bonk, 1998; Corrigan, Dell, Lewis, & Schmidt, 1980). Peer-delivered

telephone programs designed specifically for older adults have resulted in increased pneumococcal and influenza vaccinations (Krieger, Castorina, Walls, Weaver, & Ciske, 2000), and mammography and colorectal cancer screening (Derose, Fox, Reigadas, & Hawes-Dawson, 2000; Weinrich, Wienrich, Stromborg, Boyd, & Weiss, 1993).

The community health volunteer (CHV), who was trained in health education and promotion and minor illness care. Recently, these two roles have been merged and only CHVs are being trained. To be effective, CHVs should be respected members of the Thai village where they live and work. They are selected by the members of the village and receive brief training in health promotion and disease prevention, the fundamentals of Primary Health Care. To be eligible for selection as a communicator, one must (a) be able to read and write; (b) live and work in the village; (c) have shown regular participation in the village community development program; (d) be trusted by village members; (d) have one's own occupation to earn a living; (e) live in a house easily accessible to villagers; and (f) and not be a government official or Village Headman (Suvanavejh, 1992). The responsibilities of the VHV are to (a) inform villagers about issues related to health; (b) collect vital statistics including pregnancies, deaths, and migration; (c) conduct a needs assessment of their village; (d) teach and advise the villagers in all aspects of PHC; (e) carry out and coordinate village specific development activities in conjunction with other intersectoral development activities; (f) weigh pre-school age children and distribute supplementary foods for malnourished children; (g) provide simple symptomatic medical care by using home remedies or medicines approved by the Ministry of Public Health; (h) provide first aid treatment for accidental wounds and injuries; and

(i) distribute birth control pills and condoms to villagers who have already been examined by the government health staff (Suvanavejh, 1992).

In a 4-month quasi-experimental study, the validated Strong for Life home-based strength training program was implemented by volunteers through the Robert Wood Johnson Foundation Faith in Action initiative (Etkin, Prohaska, Harris, Latham, & Jette, 2006). The program successfully trained a large number of volunteers in many communities, and a substantial percentage of participants engaged in at least two exercise sessions per week. However, the study was limited by the lack of a comparison group and high mentor and participant attrition (35%). Finally, a quasi experimental study evaluated peer telephone support for older adults with diabetes delivered through a program partnership between a neighborhood senior center, a social services provider, two community clinics, and a university research center (Batik, Phelan, Walwick, Wang & LoGerfo, 2008). Peer mentors were recruited through the senior center, conducted the work at the center, and were trained by a study consultant and a program coordinator employed by the social services provider. Over 6 months, the percentage of physically active participants increased from 21% to 43%, but the study were limited by a small sample, difficulty enrolling patients, and lack of a comparison condition. Other quasi-experimental studies support the use of trained peer volunteers in delivering telephone-mediated physical activity advice for midlife and older adults (Hooker et al., 2005; Wilcox et al., 2008).

3. Follow-up reminder system for ensuring follow up appointment

Suwit Jitpakdeeboodin and Jasada Thinkhamrop explored the effectiveness of follow up system for patients with abnormal Pap smear at Srinagarind Hospital. The findings demonstrated most of subjects did not come to follow-up with the third rank of reasons including went to the other hospital, financial problem and did not know how importance the abnormal results are.

Perron et al. (2010) tested the effectiveness of a sequential intervention reminding patients of their upcoming appointment and to identify the profile of patients missing their appointments. The authors conducted a randomized controlled study in an urban primary care clinic at the Geneva University Hospitals serving a majority of vulnerable patients. All patients booked in a primary care or HIV clinic at the Geneva University Hospitals were sent a reminder 48 hours prior to their appointment according to the following sequential intervention: 1. Phone call (fixed or mobile) reminder. If no phone response: a Short Message Service (SMS) reminder. If no available mobile phone number: a postal reminder. The rate of missed appointment, the cost of the intervention, and the profile of patients missing their appointment were recorded. The sequential intervention significantly reduced the rate of missed appointments: 11.4% (n = 122) in the control group and 7.8% (n = 82) in the intervention group ($p < 0.005$), and allowed to reallocate 28% of cancelled appointments. A satisfaction survey conducted with 241 patients showed that 93% of them were not bothered by the reminders and 78% considered them to be useful.

Mayer et al. (2000) assessed the effects of a reminder letter from a physician on mammogram on appointment compliance among 1,562 women

50-74 years of age due for an between Group 1 (received a reminder letter from her physician) and Group 2 (received a reminder letter from her mammography facility) but significant difference ($p < .001$) between Group 3 (control group) and the other two groups.

The present study conducted personal contact between community health volunteer to older persons during home visiting because most of older persons were inconvenient contacting via telephone.

Decision Support: this is evidence-based guidelines that are integrated into daily clinical practice. Provider education modalities proven to change practice behavior are utilized. Hypertensive older persons are informed of guidelines pertinent to their care (Chobanion, et al., 2003). The program is used as a guide for intervention. Thus, these are document as the guidelines for hypertensive older persons to control BP at the health center.

Decision support are used in this study in order to guide the member of proactive team for caring older persons onsite visiting and support older persons with HTN and caregiver to manage their behavior in community, which achieve effectively self-management skill. The component of strategies as follow: 1) dynamic staff training system focuses on arising problem or unsolved issue and 2) hotline consultancy for onsite visit of staff member.

1. Dynamic staff training focuses on arising problem or unsolved issue

Team-based care is the strategy that has had the greatest effect on improving BP (Carter et al., 2009). Investigators from the Stanford University/University of California, San Francisco, Evidence-Based Practice Center

conducted an analysis of controlled clinical trials examining quality improvement strategies and found that the only strategy that significantly improved BP involved interdisciplinary, team based care (Walsh et al., 2006). Grumbach and Bodenheimer (2004) argue that in a primary care setting, an interdisciplinary health care team must be highly structured and organized in order to be effective. To illustrate this point, Grumbach and Bodenheimer (2004) compare interprofessional teams to football teams. Both are comprised of highly specialized individuals with specific and separate roles who work together to achieve a common objective. In this way, they are more than a mere collection of individuals; they are a group of trained professionals working in harmony with each other. Grumbach and Brodenheimer (2004) described a case study which examines the two different interprofessional health care teams in the United States. The effectiveness of these teams was attributed to their ability to adapt and change in response to the needs of patients and the health care system.

Community health volunteers as one of member team can support the delivery and sustainability of programs promoting chronic disease awareness to improve health at the community level. Volunteer lay persons are increasingly being recognized as an important human resource for large-scale community-based health promotion efforts. Volunteers' engagement with their peer group can enhance the uptake of health information in communities (Posavac, Kattapong and Dew, 1999). Further information about volunteers in community programs can ensure their continued and evolving role in health promotion initiatives. The previous study revealed that community health volunteers were trained by community health nurses to assist program participants to measure BP using an automated device, record additional risk information, ensure appropriate referral for follow-up, and provide

resources that address modifiable risk factors, which could improve BP control among older persons (Karwalajtys, 2008). Further development of the volunteer peer educator role is expected, including a more substantive involvement with participants to support lifestyle changes (Karwalajtys, 2008).

Training sessions were well received; however, volunteers identified a need for more ongoing training and support, which are predictive of volunteer satisfaction and sense of efficacy (Glanz, Marger and Meehan, 1986) and key benefits volunteers experienced included contributing to the wellbeing of others, and being valued, which is consistent with reports from other volunteer peer educators39. Increased health-related knowledge may be an incentive for peer educators to change their own health behaviors, making them role models for active health promotion in their communities ((Karwalajtys, 2008)

2. Hotline consultancy for onsite visit of staff member

There has been some progress to modernize services and develop new roles (Pritchard and Wright, 2001) with a clear focus upon working in partnership with older people (Royal College of Nursing 2004). However, challenges remain and further action is required (Healthcare Commission 2006) to ensure continued progress and consistency in service provision. the modernization process is effective to ensure that nursing leadership is required at all levels (strategic, operational and clinical) to: 1) meet what are often profoundly complex needs of patients; 2) steer services through areas where there are often no answers or where solutions can be seen as the least worst; 3) raise the profile of specialist older persons care and 4) support and enable the transformation of work-based cultures so that staff feel liberated to practice in new ways with older people, ways that are evidence based and person centered

(Manley et al., 2008). Successful consultant nurses need to be astute in organizational politics and have the interpersonal and Leadership strategies used by the Consultant Nurses were divided into those that aimed to influence either the immediate care of a patient and his/her family and/ or the team and its culture or the organization (Manley et al., 2008). The decision to implement strategies to directly improve the older persons care and those important to them commenced with an active judgment to lead patient care because of the complexity of the issues manifested in the triggers identified. This led the Consultant Nurse to decide that he/she was the most appropriate person to lead the patients' plan of care. Subsequently, the plan that resulted always involved the Consultant Nurse working with the nursing and healthcare team, modeling nursing expertise as well as enabling others to develop their expertise, thus influencing future practice. In addition, three other strategies were used: mediating between staff, patient and family; supporting all stakeholders and working across boundaries (Manley et al., 2008).

The previous study examined the effects of different types of decision support on the cardiac nurses in simulated telephone consultation processes. The system improved the performance of the decision makers and induced different types of strategic behaviors: a standardized checklist, induced more through assessment, the decision algorithms induced efficient and more detailed recommendation, and the semantic network symptom map induced information gathering more relevant to diagnosis (Enomoto, 2006).

The previous quasi-experimental study indicated that

Clinical Information System: now computerized instruments have been provided to the community care, computerized information has three essential roles,

namely: 1) a reminder system that helps primary care team adhere to the guidelines; 2) a feedback to physician or NPs to present how far actions have been taken on chronic illness measured such as BP level, cholesterol level, and so on; and 3) a registry of planning for care of individualize patient (Bodengeimer & Wagner & Grumbach, 2002). All these computerized roles are useful and timely (Nutting, et al., 2007). The previous study a cluster randomized controlled trial to examine the effectiveness of computerized decision support (CDS) designed to improve HTN care and outcomes in a racially diverse sample of primary care patients found that CDS improved appropriate medication prescribing with no improvement in disparities in care and overall BP control (Hicks, et al., 2007).

At the health center, the Ministry of Public Health developed the Java Health Center Information System (JHCIS) for computerizing and reporting the clinical data and local health statistic. However, the health officers cannot analyze the specific group of chronic illness patient to monitor the health outcome and support the decision making to develop the plan individual older person's care.

Clinical information system are used in this study in order to monitor and evaluate the BP control monthly among older persons with HTN in community The component of strategies as follow: 1) monitoring 2) evaluation and proactive care plan development. The past cluster randomized controlled trial which examined the effectiveness of computerized decision support designed to improve hypertension care and outcomes in a racially diverse adult patients receiving hypertension care in 14 primary care practices to either 18 months of their physicians receiving computerized decision support for each hypertensive patient or to usual care without computerized support for the control group. The findings showed rates of BP

control were 42% at baseline and 46% at the outcome visit with no significant differences between groups.

Preparing the health care provider for a proactive team coordinator: today's several significant factors that affect healthcare environment are higher number of aging and older individuals, the development of new technologies, advancements in medical management, and the tremendous increase in scientific knowledge in health and illness. One result is that many older persons are living with HTN and its complication (Center for Disease Control and Prevention, 2001). The proactive team is very important to deliver HTN management and HTN self-management group education. According to this concept, no individual nurse has both the control of and responsibility for the care of any individual patient (Heenan, 2007). In deliver system design, creating practice teams with a clear division of labor and separating acute care from the planned management of chronic conditions. Physicians treat patients with acute problems, intervene in stubbornly difficult chronic cases, and train team members. Non-physician personnel are trained to support patient self-management, arrange for routine periodic tasks, and ensure appropriate follow-up. The team led by nurse establishes the new consultation service, which assisted with identifying cases, provided consultation early in the hospital stay, focused its evaluation on functional and psychosocial issues, and assisted in clinical management to optimize implementation of recommendations (Sennour, Counsell, Jones, & Weiner, 2009).

Productive interaction is a part of good chronic illness care requires productive clinical interactions between inform activated patients and prepare proactive practice teams. An informed and activated patient understands the disease

process, and realizes his/her role as daily self-manager. The proactive team members have the patient information, decision support, older persons, equipment, and time required to deliver evidence-based clinical management and self management support at the time of the visiting (Nutting, et al., 2007). A thorough assessment is conducted and clinical management is guided by tailoring clinical management protocols to the needs and preferences of patient. As a result of their interaction a shared care plan is developed including goal setting and problem solving. Active, and sustain follow-up ensures progress toward meeting the goals and amending management to meet them (Siminerio & Zgibor, 2004).

Generally, the CCM initiates at the bottom with improved outcomes what providers and patients would consider the most important aspect of care. In order to meet the goal, change is necessary to way in which hypertensive older persons interact wit their practice team. These needs are productive interactions between a prepared proactive practice team and an informed, activated hypertensive older persons. It was clinical and behavioral interventions that reflect evidence-based, guideline-driven chronic care delivered in a fairly systematic way. These interactions also include assessments of clinical status, self management skills, confidence as well as collaborative goal setting as a master of design. Productive interactions need not necessarily occur in person or individually but could be by phone, electronic mail, tele-communication of health or home visiting (Michele, 2007).

As the evidence above, the CCM is the collaborative combine rapid cycle change methods with multiple change strategies to facilitate improvements in processes and outcomes of care for people with chronic illness such diabetes, HTN (Pearson & Wu, 2005). As the fundamental of concepts, the self management support

could not be delivered alone, it needs other elements such as clinical information system, and (redesigned) delivery system and community resources (Wagner, et al. 1996). Support from the health system and the community is necessary to facilitate the productive interaction between patients and providers (Siminerio, et al., 2006). Therefore, this framework is also used to guide and develop the effective intervention to control BP and reduce cardiovascular risk in hypertensive older persons.

The researcher select the four concepts from chronic care model which could integrate into practice including self management support, delivery system design and decision support. These concepts are provided to the community health nurse for preparing the proactive team to create productive interaction, recognizing the improvement of quality of chronic care.

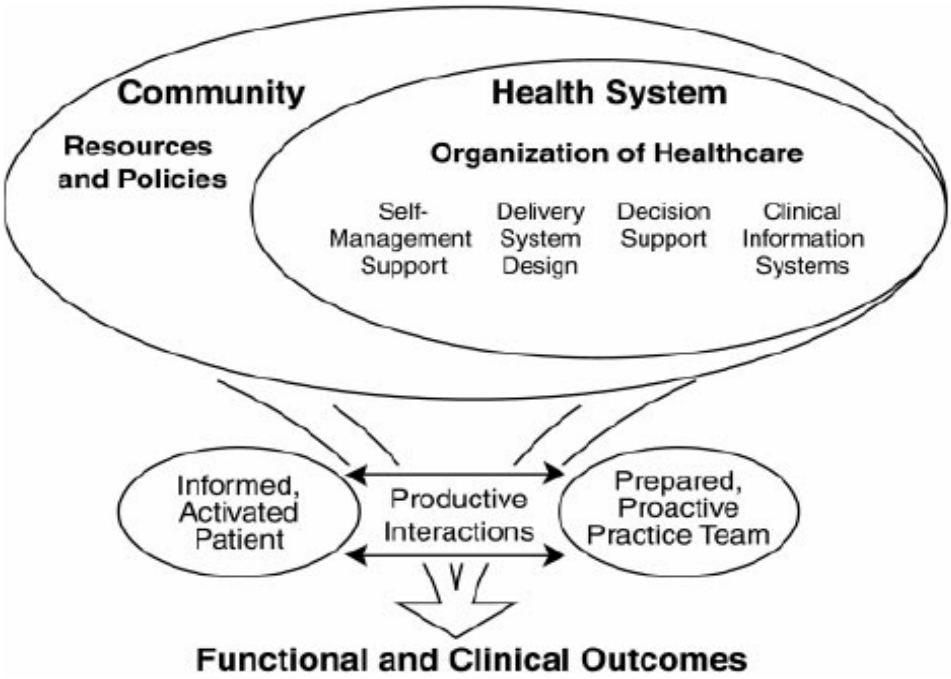


Figure 2 Chronic Care Model

Source: Wagner, E. (1998). Chronic disease management: What will it take to improve care for chronic illness? *Effective Clinical Practice,* 1, 2-4.

Table 3 Framework considering evidence base for designing multicomponent proactive nursing program

Concept (Wagner, 1998)	Multicomponent proactive nursing program
1. Self management support	- Interactive group education (Chodosh, et al., 2005) - Promoting caregiver ability - Reinforce by using reward
2. Delivery system design	- Proactive home visit (Garcia-Peña, 2001) - Health Mentoring (Batik et al, 2008) - Follow-up reminder system
3. Decision support	- Dynamic staff training (Karwalajtys, et al., 2008) - Hotline consultancy (Enomoto, 2006)
4. Clinical information system	- Monitoring - Evaluation and Develop care plan

Satisfaction with Care

Satisfaction can be defined as the extent of an individual's experience compared with his or her expectation (Pascoe, 1983). Patient satisfaction with care is related to the extent to which general health care needs and condition-specific needs of patient are met. Evaluating to what extent patients are satisfied with health services is clinically relevant, as satisfied patients are more likely to comply with treatment (Guldvog, 1999), take an active role in their own care (Donabedian, 1988), continue using medical care services and stay within a health provider (where there are some choices) and maintain a specific system (Marquis, Davies & Ware, 1983). In addition, health providers may benefit from satisfaction surveys that identify potential areas for service improvement and health expenditure may be optimized through patient-guided planning and evaluation (Aharony & Strasses, 1993). Although the use of patient opinion in guiding clinical practice has increased in recent years, patient satisfaction is considered by some to be of dubious benefit in facilitating the process of clinical care. In COPD care, there is a limitation to the study of patient satisfaction with care.

There are conflicting opinions, however, concerning appropriateness and usefulness of these patient satisfaction studies. On the one hand, there is concern about the ability of patients to evaluate quality and the value of the care that they have received. On the other, there is concern that healthcare providers fail to acknowledge the valuable contribution patient opinion can have on health care services (Barriball & Mackenzie, 1993). Recently, a number of studies have reported the reliability of satisfaction surveys (Aharony & Strasser, 1993; Bredart, et al., 2001). However, critics draw attention to the lack of a standard approach to measuring satisfaction and so the significance of the results of those surveys that do exist in the literature is often ignored (Asadi-Lari, Tamburini & Gray, 2004). Nevertheless, the potential of patient satisfaction in providing valuable data to guide practice requires more attention. Thus, this study has been designed to include the satisfaction of patients with MPN program provided by the nurse researcher.

Quality of care form the patient's perspective and satisfaction were major multidimensional concepts that were utilized several times interchangeably. Quality of care has a subjective profile as it includes a cognitive evaluation process and an objective determinant which was care as an outcome, a process or a structure measure (Raftopoulos, 2005 1-15). For person with type 2 diabtes perceive quality of care, caring must be viewed from their view. The persons' perception of nursing intervention should be a component of satisfaction surveys (Williams, 1998). In fact, in the USA the importance of satisfaction was routinely included in accreditation standards and in standards of care developed by professional organizations (Thapintaand Anders, 2004: 271-277).

1. Definition of satisfaction

Satisfaction refers to the subjective evaluation of persons' cognitive and emotional reaction as a result of the interaction between their expectations regarding ideal nursing care and their perceptions of the actual nursing care (Eriksen, 1995: 59-76.; Johansson and Oleni, 2002: 337-344). Satisfaction with nursing intervention in persons with type 2 diabetes has become an important indicator to measure the quality of care (Fan and Burman, 2004: 226-233).

2. Concept Related to the Theory

This study, satisfaction represents a global cognitive evaluation or judgment in term of satisfaction with the quality of care provided. According to this view, satisfaction could be viewed as an attitude: "a summary evaluation of care episodes ranging from positive to negative". In another word, satisfaction was an evaluative summary of one's likes or dislikes of the care provided. We emphasized the role of broad individual differences in personality, satisfaction and the role of certain situations, events, during hospitalization or during previous uses of healthcare services in overall satisfaction with care provided. Several aspects of patients' personality affect the way they consider the certain or all stimuli of care environment. From a healthcare provider's perspective, one of the main reasons for measuring satisfaction was to provide information to facilitate improvements to the process of care. To identify aspects of the care process, a variable that measures could affect patients' overall perceptions of the quality of care received (Sandoval and Levinton, 2006: 151-156). This study found that clinical experience and technical competency of nursing intervention may contribute to satisfaction. However, quality of care depends person's subjective perception of what represents satisfaction that counts

(Leino-Kilpi and Vuorenheimo, 1992: 22-28). In this regard, the concept should be considered as an adequate indicator of nursing intervention. Persons with type 2 diabetes could look forward to and demand satisfaction from nursing intervention and should be allowed to take an active part in decision making concerning their care. This contributes to making nursing intervention both patient- and result-orientated. Different healthcare professionals exert different influences on the person's perception of satisfaction (Johansson and Oleni et al., 2002: 337-344). In persons with type 2 diabetes assessments of their satisfaction with healthcare, the nursing intervention provided by nurses was considered as the most important factor. In This respect, the nurse was at the forefront of the healthcare system. If the nurse was unable to fulfill this role, a high level of satisfaction in persons who received the intervention will not be achieved. It was, therefore, of crucial importance that all healthcare professionals co-operate to improve care quality, in consultation with the care-receivers (Idwall and Rooke, 1997: 6-17). However, satisfaction in the nursing intervention may occur from several factors.

3. The Factors that Influence the Concept of Satisfaction

As seen from the patient's perspective, the factors that influence the concepts of satisfaction in person were of primary importance, such as those of the healthcare professionals, was of lesser value. If the person was satisfied with the nursing intervention received. This was positive, not only for the individual but also for the nurse and the whole healthcare organization (Johansson and Oleni et al., 2002: 337-344). Hornsten and Lundman used a qualitative study to elucidate patients' perspectives on clinical encounters in diabetes care. Five themes were connected to satisfaction and dissatisfaction, namely 'being in agreement vs. in disagreement on the

goals', 'autonomy and equality vs. feeling forced into adaptation and submission'; 'feeling worthy as a person vs. feeling worthless'; 'being attended to and feeling welcome vs. ignored'; and, lastly, 'feeling safe and confident vs. feeling unsafe and lacking confidence. The researcher suggested that despite efforts to individualize diabetes are and find ways to communicate with people with diabetes, many people had experiences of clinical progress into dissatisfaction. Experiences of dissatisfying encounters have elements that may threaten their perception of self and identity, while the elements included in satisfactory encounters were who characterized patientcentered care (Hornsten and Lundman, 2005: 609-617). A medical survey (2002) found the following variables that influence satisfaction: commitment of top management; linking of satisfaction scores with employee and management of monetary incentives; and, recognition of employees who contribute to satisfaction. Determinants of satisfaction in persons include, but not limited to, gender and familiarity with the number of physician visit (Esterhai et al. 1998). Patients were varied in their levels of satisfaction. Gines et al. (2002) reported that medical patients were more satisfied than non-medical patients; whereas Middletown et al. (2002) reported that surgical patients had higher levels of satisfaction than medical patients (Mrayyan, 2006: 224-230).

Fan (2004) identified various factors that influence satisfaction in person who received the intervention in healthcare setting; characteristics of the medical provider such as experience, age, or gender; and continuity of care. Along with patient characteristics such as age, gender, and income, patients' self-reported general health status has constantly predicted their satisfaction with healthcare.

Patient’s education and ability to cope with chronic conditions were more strongly associated with satisfaction with community care provider than disease severity.

4. Component of Satisfaction

Several components have been proposed, some are appropriate for specific healthcare contexts, others are aiming for broader applicability. The study was based on the concept of access to care of Penchansky and Thomas (1981). They determined access as a key concept in health policy and health services to find out customer satisfaction. "Access" refers to entry into or use of the healthcare system, while others characterize factors influencing entry or use. As created by Penchansky and Thomas (1981), access reflects the fit between characteristics and expectations of the providers and the clients. They grouped these characteristics into five as access to care, namely: affordability, availability, accessibility, accommodation and acceptability.

1) Affordability was determined by how the provider's charges relate to the client's ability and willingness to pay for services. Availability measures the extent to which the provider has the requisite resources, such as personnel and technology to meet the needs of the client.

2) Availability refers to the relationship of the adequacy of the supply of physicians, nurses, and other healthcare providers and of facilities including clinics and other special programs and services to meet the needs.

3) Accessibility refers to geographic accessibility, which is determined by how easily the client could physically reach the provider's location.

4) Accommodation reflects the extent to which the provider's operation is organized in the way that meets the constraints and preferences of the client. Of

greatest concern are hours of operation, how telephone communications are handled, and the client's ability to receive care without prior appointments.

5) Acceptability captures the extent to which the client is comfortable with the more immutable characteristics of the provider, and vice versa.

These characteristics include age, sex, social class, and ethnicity of the provider (and of the client), as well as the diagnosis and type of coverage of the client. Cheevakasemsook and Yunibhabd (2005) developed a questionnaire to assess satisfaction on nursing care. The concepts consisted of the following:

1) Art of nursing care dimension consists of various aspects of satisfaction with the nurses' behavior,

2) Technical nursing dimension;

3) Managing environment dimension;

4) Available nursing service dimension;

5) Continuing of care dimension;

6) Effectiveness of nursing care or outcomes of nursing care dimension.

Phattharayuttawat and Ngamthipwatthana (2005) developed the taxonomy of the Thai Psychiatric Satisfaction Scale (TPSS) (Phattharayuttawat and Ngamthipwatthana, 2005: 1067-1076). Each conceptual dimension of the TPSS consists of a certain number of items that cover various aspects of satisfaction with services:

1) The professional skills and behavior dimension consists of various aspects of satisfaction with professionals' behavior, such as technical skills,

interpersonal skills, cooperation between service provider respect of patients' rights, etc.; psychiatrics, psychologists, nurses and social workers assessed in separate items;

2) The information dimension consists of three items which cover aspects related with satisfaction with service information;

3) The access dimension consists of four items which cover aspects related with satisfaction with service location physical layout and costs;

4) The efficacy dimension consists of five items which cover aspects related with satisfaction with overall efficacy of the service, and service efficacy on specific aspects such as symptoms, social skills, and family relationships;

5) The type of intervention dimension consists of nine items which cover various aspects of satisfaction with care, such as drugs prescription, response to emergency, psychotherapy, rehabilitation, domiciliary care, admission, housing, recreational activities work, benefits, etc.

6) The relative involvement dimension consists of four items which cover various aspects of the patient satisfaction with help given to his/her closest relative, such as listening, understanding, advice, information, help coping with the patient's problems

7) Environment and setting dimension consists of five items which cover various aspects of the patient satisfaction with the environment and setting of the psychiatric services.

8) The overall satisfaction dimension consists of four items which cover general aspects of satisfaction with psychiatric services.

5. Measurement of Satisfaction

The measurement of satisfaction is becoming more interesting to care providers and administrators. Especially satisfaction with nursing intervention could become an outcome measurement because satisfaction has been shown to be the most important predictor of overall satisfaction with hospital care (Munro, et al 1994). Moreover, measurement of satisfaction has been one of the most frequently used technical terms in healthcare quality assurance. Satisfaction measures have been used for a variety of purposes and in a wide range of settings. Some are designed to identify problems and potential improvements (Ellis and Whittington, 1993).

In this study, the researcher designed to measure improvement of quality of hypertensive older person care service that takes part in a multifaceted nurse coaching intervention. In this study, provision of nursing intervention in community care, the researcher selected the concept of satisfaction with care from Suwisith and Hanucharurnkul (2011) because it has clearly outlined the dimensions of satisfaction to be measured.

Research Studies on related variables

Hacihasanoglu and Gozum (2011) audited of consenting patients was conducted at the four sites participating in the Strengthening Primary Care Initiative. To achieve this goal in Nova Scotia, collaborative practice teams with a nurse practitioner and at least one physician were established, and both alternative funding arrangements for physicians and an information system were implemented among 211 charts of patients with diabetes and 541 charts of patients with HTN were audited. Process-of-care, targeted health outcomes, patient education and self-care items were measured for patients with diabetes. Process-of-care and outcome measures related to

clinical management, BP, lifestyle modifications and laboratory investigations were measured for patients with HTN. This study revealed the percentage of patients with diabetes who achieved target BP control rose from 20.4 to 28.5%. Annual screening for retinopathy increased from 33.8 to 41.9% and nephropathy from 61.7 to 71.3%. The percentage of patients monitoring blood glucose levels at home increased from 61.5% to 69.1%. The percentage of patients with HTN who had their BP checked at least twice a year dropped from 89.1% to 85.0%; however, more patients achieved target systolic (rising from 40.6 to 55.3%) and diastolic (from 77.9 to 85.3%) BP readings. Body mass index was recorded and moderate exercise prescribed to more patients. The percentage of patients with recorded fasting blood glucose levels (from 37.7 to 67.1%) and lipid profiles (from 62.6 to 69.1%) was markedly higher.

Graham, Sketris, Burge, and Edwards (2006) conducted education on healthy lifestyle behaviors and medication adherence among 120 subjects in Turkey. The study was also conducted at public primary health care facilities and homes of the study participants. The results demonstrated Healthy lifestyle behaviors and perception of self-efficacy regarding medication adherence showed improvement after education sessions in Groups A and B. Systolic and diastolic BPs of subjects in Group A and B showed a significant decrease compared with those of the control group; the BP decrease in Group B was greater than in Group A. The study showed nurses play an important role in uncontrolled HTN detection and can improve medication adherence and healthy lifestyle behaviors.

McPherson, Swenson, Pine, and Leimer (2002) evaluated the effectiveness of a nurse-based cardiovascular disease risk factor reduction program among patients at a primary care outpatient clinic among 436 patients at a primary care clinic in

suburban Minneapolis, Minnesota, were enrolled in 2 years; 286 patients were followed up with additional visits. The nurse intervention included comprehensive CVD risk assessment, patient education, and counseling. Algorithms guided the development of individualized care plans based on laboratory test values, BP readings, tobacco use, and history of cardiovascular events. Physicians were consulted for serious changes in patients' medical conditions or for medication changes. The results showed statistically significant reductions were achieved from baseline to the final nurse visit in systolic BP (from 155.8 to 143.4 mm Hg), diastolic BP (from 94.4 to 84.0 mm Hg).

Stroebel, Broers, Houle, Scott, and Naessens (2000) developed the new care model consisted of five physician (MD) /registered nurse /licensed practical nurse teams in a large community practice to manage hypertensive patients as part of guideline implementation efforts. The other 25 MD teams in the same setting practiced in the usual model, but were exposed to the guideline recommendations. BP control rates of patients in each group were assessed monthly. After nine months of testing the new care model, 10 additional teams adopted the model. The results showed HTN control rates were statistically significant improvement from 33.1% to 49.7%. After adjusting for age, this was significantly greater than the improvement in the control group (p = .033). Medication changes were more frequent in the pilot group (32.3%) than in the control group (27.6%); however, the differences were not statistically significant. A longitudinal examination of the HTN patients in the study showed that improved BP control was sustained for at least 12 months.

Rinfret et al. (2009) conducted an information technology-supported management program by using randomized controlled trial included 223 primary care

hypertensive subjects with mean 24-hour BP and daytime measured with ambulatory monitoring (ABPM) providing nurses, pharmacists, and physicians with monthly reports. Intervention subjects received a BP monitor and access to an information technology-supported adherence and BP monitoring system Control subjects received usual care. The results demonstrated the mean (+/-SD) follow-up was 348 (+/-78) and 349 (+/-84) days in the intervention and control group, respectively. The primary end point of the change in the mean 24-hour ambulatory BP was consistently greater in intervention subjects for both systolic (-11.9 versus -7.1 mm Hg; $p < .001$) and diastolic BP (-6.6 versus -4.5 mm Hg; $p = .007$). The proportion of subjects that achieved Canadian Guideline target BP (46.0% versus 28.6%) was also greater in the intervention group ($p = .006$). The intervention was associated with more physician-driven antihypertensive dose adjustments or changes in agents ($p = .03$), more antihypertensive classes at study end ($p = .007$), and a trend toward improved adherence measured by prescription refills ($p = .07$).

Eriksson, Franks, and Eliasson (2009) tested the intensive lifestyle modification, shown previously in tightly-controlled clinical trials to be efficacious for diabetes risk-reduction among high-risk individuals, conducting from 2003 to 2006 with follow-up on cardiovascular risk factors at 3, 12, 24 and 36 months among 151 middle-aged men and women at moderate- to high-risk of cardiovascular disease from northern Sweden . The three-month intervention period was administered in the primary care setting and consisted of supervised exercise sessions and diet counseling, followed by regular group meetings during three years. The control group was given general advice about diet and exercise and received standard clinical care. Outcomes were changes at 36 months post-randomization, intensive lifestyle modification

reduced waist circumference (-2.2 cm: $p = .001$), waist-hip ratio (-0.02: $p < .0001$), systolic BP (-4.9 mmHg: $p = .036$), and diastolic BP (-1.6 mmHg: $p = .005$), and improved aerobic fitness (5%; $p = .038$).

Hardcastle, Taylor, Bailey, and Castle (2008) determined multiple patient-centered lifestyle counseling sessions among 334 mostly obese patients with at risk of coronary heart disease, and if such sessions would result in changes in physical activity and diet, and health status. A randomized trial was conducted to compare the counseling intervention with usual care (health promotion leaflet). Patients were randomized into an intervention group that received standard exercise and nutrition information plus up to five face-to-face counseling sessions with a Physical Activity Specialist (PAS) and Registered Dietitian (RD) over a 6-month period or to a control group that only received the standard information. Of those invited, patients randomized tended to be more obese, older and female. The mean (*SD*) sessions attended was 2.0 (1.6) with 50% attending at least 3. At 6 months, the counseling group were more active, particularly with respect to walking, and had reduced BP, but had not changed their diet, compared with the control group.

Green et al. (2008) determined a new model of care that uses patient Web services, home BP (BP) monitoring, and pharmacist-assisted care improves BP control. A 3-group randomized controlled trial, the Electronic Communications and Home Blood Pressure Monitoring study was based on the Chronic Care Model, enrolling 778 participants aged 25 to 75 years with uncontrolled essential HTN and Internet access. The results indicated 730 (94%) completed the 1-year follow-up visit. Patients assigned to the home BP monitoring and Web training only group had a non significant increase in the percentage of patients with controlled BP (<140/90 mm

Hg) compared with usual care (36% [95% confidence CI, 30%-42%] vs 31% [95% CI, 25%-37%]; P = .21). Adding Web-based pharmacist care to home BP monitoring and Web training significantly increased the percentage of patients with controlled BP (56%; 95% CI, 49%-62%) compared with usual care ($p < .001$) and home BP monitoring and Web training only ($p < .001$). Systolic BP was decreased stepwise from usual care to home BP monitoring and Web training only to home BP monitoring and Web training plus pharmacist care. Diastolic BP was decreased only in the pharmacist care group compared with both the usual care and home BP monitoring and Web training only groups. 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 (-13.2 mm Hg [95% CI, -19.2 to -7.1]; P < .001) and diastolic BP (-4.6 mm Hg [95% CI, -8.0 to -1.2]; P < .001), and improved BP control (relative risk, 3.32 [95% CI, 1.86 to 5.94]; P<.001).

A six month prospective randomized control trial tested the effectiveness of two levels of a hypertension disease management program in improving BP control in a sample of 5,932 adult African American participants (Brennan et al., 2010). From an initial sample of 5932 potential participants, only 638 completed the study. The intervention group received educational materials, lifestyle and diet counseling and a home BP monitor and the control group received a home BP monitor alone. The outcome variables measured was the proportion of subjects in each group with BP < 120/80. Mean systolic BPs decreased for both groups, however the intervention group's systolic BP (123.6 mmHg) was significantly lower than the control group's systolic BP (126.7 mmHg)(p = .03). Mean diastolic BPs also decreased in the

intervention group from 84.6 mmHg (SD = 12.3) to 80.6 mmHg (10.5) and from 83.6 mmHg (SD =12.3) to 80.1 mmHg (SD = 10.4) in the control group. There was no significant difference between groups in diastolic BP (p = .99). The intervention group was 50% more likely to achieve BP control (<120/80 mmHg) (p = .05) than the control group and were 46% more likely to monitor their BP at least weekly than the control group (p = .02). Limitations of the study included low recruitment and program completion rates.

Summary

From the above, it can be concluded that poor BP control in hypertensive older persons is the major problem which lead to CVD and disability. Therefore, the multiple-component coordinated by NPs intervention should be established in community level at health center. To date, in Thailand, the existing evidences present that there are no compatible healthcare delivery system with older persons who living with chronic illness in long life, especially HTN.

The researcher hope that the data gained from this study will present a few of benefit of a nursing intervention to improve BP control and increase satisfaction with care. It is also expect that this study will produce a tremendous data of hypertensive older persons in community setting. In addition, findings generated from this study will be the existing nursing knowledge for instituting transitional and/or community-based as a mechanism for further improvement of outcome and quality of care related to hypertensive older persons.

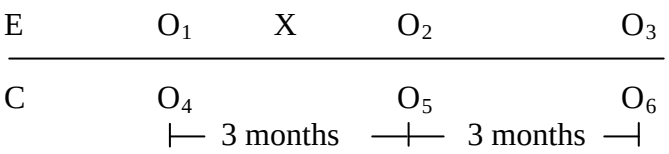
CHAPTER III

RESEARCH METHODOLOGY

This chapter discusses the research methodology selected for this study. This chapter will include: research design; setting; population and sampling; instrumentation; protection of the rights of human participants; data collection; threats to internal validity, and data analysis procedure.

Research Design

The study was quasi-experimental, with a control group pretest and post-test design. The design was used to determine the effects of a Multicomponent Proactive Nursing-MPN program on blood pressure (BP) control and satisfaction with care among older hypertensive patients in a community who have attended the chronic care service, at two Health Centers, (Pothong and Mokhlan) in Nakhon Si Thammarat Province. The outcomes measured were BP control and satisfaction with care. Participants in the experimental group received both the MPN (which was conducted by a nurse researcher) and routine care. Participants in the control group received only routine care. At the pretest phase, baseline data was gathered from participants. For those from the health centers, the pretest assessment was performed immediately after the participants consented to participate in this study. The scheme of the research design was as following;



E = the experimental group

C = the control group

X = the MNP was carried out over 3 months.

O_1 = mean systolic BP, mean diastolic BP, and patient satisfaction with nursing care (PSNQ) was obtained Scores of participants and the percentage those who had achieved their BP goal on the day of the recruitment in experimental group

O_2 = mean systolic BP, mean diastolic BP, and PSNQ scores of participants and percentage of participants who had achieved their BP goal at 3 months after completing intervention in the experimental group

O_3 = mean SBP and mean DBP of participants, and percentage of participants who had achieved their BP goal at 6 months after completing intervention in the experimental group

O_4 = mean SBP, mean DBP, and patient satisfaction with nursing care scores of participants and percentage of participant who had BP goal achievement, at the day of the recruitment in control group

O_5 = mean SBP, mean DBP, and PSNQ scores of participants and percentage of participant who had BP goal achievement at 3 months after completing intervention in control group

O_5 = mean SBP and mean DBP of participants, and percentage of participant who had BP goal achievement at 6 months after completing intervention in control group

Setting

This study was conducted at communities in the southern part of Thailand. Those communities were selected as a setting for this study because (1) the policy of the Public Health Ministry was to improve the potential of health centers to take care of patients with chronic diseases such as hypertension, diabetes mellitus, heart disease under the Universal Health Care Coverage Scheme. As a result, chronic care service for chronically ill patients had been established at these health centers, (2) those health centers had a chronic care service for caring for older hypertensive patients following Guidelines for the treatment of hypertension (Thai Hypertension Society, 2008) that was the same standard care as other health care services in Thailand, and (3) this area was easily accessible.

The health care system for older hypertensive patients at the Nakhon Si Thammarat Province consisted of: (1) tertiary level of care at the Maharaj tertiary hospital, which is located approximately 40 kilometers from the Tha Sala district where patients needing specialist care were referred to; (2) secondary level of care at the Tha Sala general hospital, which is located about 5 to 25 kilometers from patients' residences where they were referred at the onset of their hypertensive crisis or complications; and (3) primary level of care, provided at all 14 District of Health Promotion Centers (DHPC) of Tha Sala district where there were one or two health centers in each tambon located in the communities near the residences of those patients with general health problems. The chronic care service of health centers were run by a community health nurse on Tuesdays from 8.00 a.m. to 12.00 a.m. and provided monthly follow-up. Each week, there were approximately 30-50 patients receiving medical services at the center. At the chronic care service, provisions for

patients with hypertension included (1) general information physical examination and attention to compliance with pharmacological treatment following the physician's prescription. No particular modifications in care were made at this facility in the approach for caring for the frail. The main health centers have a staff nurse from the Thasala hospital; however she also is more concerned with chronic health problems rather than with the specific chronic care needs of older persons. In addition, there was a limitation of home care services for older hypertensive patients because of a shortage of nursing staff. Moreover, in the health center's, there were healthcare providers who focused primarily on common health and environmental problems of the community instead of the unique chronic care need of older patients.

Population and Sample

Population

The population of this study was older persons aged 60 years and over diagnosed by physician as having essential hypertension who received chronic care services and were prescribed anti-hypertensive medication.

Sample

The sample for this study was older persons aged 60 years and over diagnosed by physician as having essential hypertension who received chronic care services and anti-hypertensive medication at health center in Thasala, Nakhon Si Thammarat, Thailand.

The participants were selected based on their eligibility. The researcher first reviewed medical records and interviewed both older hypertensive patients and family caregivers to determine whether the participants were eligible. Prospective

participants fulfilling all of the following criteria were invited to participate in this study.

Inclusion criteria

1) Age 60 to 79 years at the time of the initial screening;

2) A diagnosis of hypertension-HTN was defined as a systolic blood pressure-SBP ranging from 140 to160 mm Hg and /or diastolic blood pressure-DBP ranging from 90 to 100 mm Hg on any two clinic visits in the previous a year while taking antihypertensive medication;

3) Resided with their primary family caregiver;

4) Good functional status was assessed by Chula's Activities of Daily Living Index (Chula ADL Index) (Appendix B) with having a score of at least 16 out of 20.

5) Good cognitive function which was assessed by standard Mini-Mental Health Examination Thai 2002 (MMSE-T) (Appendix C) with scores as follows:

≥ 14 out of 23 scores for illiterate participants;

≥ 17 out of 30 scores for literate participants; and

≥ 22 out of 30 scores for participants completing elementary level

6) Willing to participate fully in all aspects of the intervention.

The participants were matched in pairs according to their gender, the presence of diabetes mellitus (DM), and type of medication. These dyads aimed to control for bias and increase the power of the study. The descriptions for match paired were as follows:

1. Gender: was a risk factor related to uncontrolled hypertension. Female patients are more frequently associated with uncontrolled hypertension (Agyemang, et al., 2006: 877; Kadir, Mohamed, & Yusof, 2009: 21). The participants were therefore paired for the same sex (male with males or females with females).

2. The presence of DM: participants had to have diabetes mellitus--DM as a comorbidity which was diagnosed by a physician. Those with a diagnosis for DM is a strong predictor for not achieving adequate BP control (Esposti, et al., 2004: 211; Kadir, Mohamed, and Yusof, 2009: 21). For pair matching in this study, the presence of DM was divided into 2 groups as follows:

2.1 did not have DM

2.2 Had DM

3. Types of medication: types of antihypertensive treatment were identified on the basis of mean daily dose (MDD) (tablets/day), taken by each patient. This was calculated based on the number of tablets of antihypertensive drugs purchased each year, divided by 365. (Esposti, et al., 2002: 440). Participants were matched in both the experimental and the control groups into 3 levels:

3.1 MDD < 1 tablets/day;

3.2 MDD 1-2 tablets/day;

3.3 MDD > 2 tablets/day.

The results showed there were twelve male and thirty eight female matched pairs. Nineteen pairs had DM and thirty one did not; four pairs took only one drug daily, thirty eight pairs took two medications and eight pairs took multiple drugs (Appendix L). There were twelve male and thirty eight female matched pairs.

Nineteen pairs had DM and thirty one did not; four pairs took only one drug daily, thirty eight pairs took two medications and eight pairs took multiple drugs.

Sample size

The number of participants for the study, the sample size was determined, based on a power analysis and effect size determinations. The effect size was based on a meta-analysis by Fahey, Schroeder, and Ebrahim (2006) in which they synthesized the intervention for hypertensive patients. The average effect size of the dependent variable (BP control) was medium (d = 0.30 to 0.54). Utilizing an alpha of 0.05 and a power of 80%, it was estimated that 37 subjects were needed to (Hair, Black, Babin, & Anderson, 2010) for assigned to each group. However, to factor in participant loss of 20%, 45 participants for each group were recruited.

Sampling procedure

Simple random sampling was used to select two health districts in the southern part of Thailand. The two District health promotion centers providing services for hypertensive patient were Photong and Mokhlan (see Figure 3).

The nurse researcher reviewed the medication record of participant based on inclusion criteria. When 114 older hypertensive patients whose characteristics met the inclusion criteria were selected, the researcher used a draw technique to match pairs. The first 57 participants based on matching characteristic and were allocated to the experimental group. Among all those approached to participate in this study by the researcher, four refused. The researcher selected other participants who met inclusion criteria and matching characteristics until the total number in this group were obtained. The second 57 participants were allocated to the control group. They were matched in pairs based on the same characteristics as the experimental group. Two participants in

this group refused when approached to obtain informed consent by the researcher. Again, the researcher selected other participants who met matching characteristics of until complete the total number in this group was achieved. The sampling procedures outlined in Figure 3.

Sample attrition

From the possible 114 HTN patients at the clinics who met the inclusion criteria, between June and August 2011, informed consent was obtained from those prior to beginning the study. Seven participants in the experimental group dropped out (three lost to follow up, three patients did not complete the intervention requirement, and one migrated). Seven participants in the control group also did not complete the study of which two emigrated and five participants were lost to follow up. Finally, the final experimental and the control groups each contained 50 participants and were equally distributed to either of the two clinics (Figure 3).

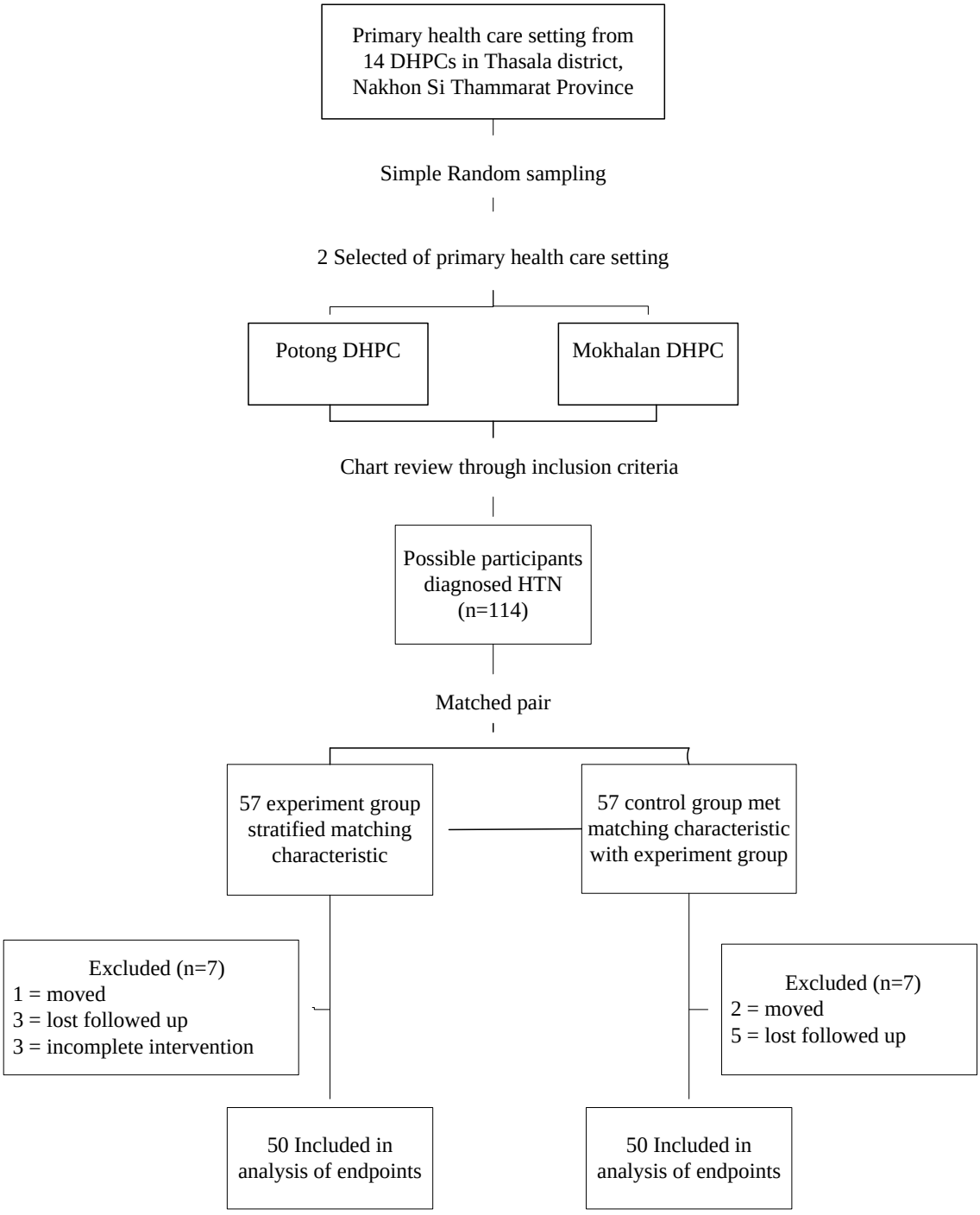


Figure 3 Flow Diagram of the study

Research Instruments

There were three types of instrument used in this study; 1) data collection instruments, 2) intervention instruments, and 3) experimental monitoring instruments. The content validity of the instruments was examined by seven experts including three nurse instructors from various institutions, who were experts in community-based care for older patients, public health nursing care, and chronic disease management for older patients; two advanced practice nurses who were experts in taking care of older patients with HTN in community and home care for chronic illness in primary care setting; and two physicians who were experts in geriatric medicine and chronic health management based on The chronic care model-CCM (Appendix S).

1. Instrument for data collection

Instruments for data collection consisted of a Personal Information sheet, Patient Satisfaction with Nursing Care Questionnaire (PSNQ), and an instrument for recording the BP measurements.

1.1 The Personal Information Sheet and Hypertensive information

The personal information sheet (Appendix A) consisted of two part: 1) a section for demographic data of the older hypertensive patient namely age, gender, marital status, religion, educational level, and sufficiency of family income; and 2) a section for health information related to HTN consisting of pulse, body mass index (BMI), waist hip ratio (WHR), SBP, DBP, and duration of illness, type of medication or Mean Daily Dose (MDD), and presence of DM (Appendix D).

1.2 Patient Satisfaction with Nursing Care Questionnaire (PSNQ)

The PSNQ obtains information on the patient's perception of satisfaction toward care. The original PSNQ was developed by Nonglak Suwisith and Somchit Hanucharurnkul (2011) which assessed three dimensions of satisfaction with care: client-nurse relationship, quality of care, and outcome of care or improvement. The PSNQ contains 15 items scored on a 5-point Likert scale ranging from *strongly unsatisfied* (1) to *strongly satisfied* (5). The PSNQ was assessed by summarizing the average scores. Possible scores ranged from 1 to 5. The higher average score reflected a higher degree of satisfaction with nursing care (Appendix E). The researcher were allowed to used this questionnaire from the developer (Appendix R).

The original questionnaire was initially designed for patients who resided in the community. Construct validation was done by testing with 146 consenting patients recruited upon their visit to outpatient clinics of two district hospital and one university hospital. The Cronbach's alpha coefficient for all scales was 0.94. Using principal components factor analysis with varimax rotation, factor loadings for the items were high on three factors, explaining 83.1 % of variance of the remaining fifteen items (Nonglak Suwisith and Somchit Hanucharurnkul, 2011).

Because the PSNQ had not been use previous in the geriatric population, content validity was established by five expert panels in geriatrics and community nursing: one gerontological nurse instructor, two community nurse instructors, and two advanced practice nurses. An excellent Content Validity Index (Lynn, 1986) score of 0.99 was established. Internal consistency (Cronbach's $\alpha = 0.87$) for the PSNQ was done with 30 consenting older hypertensive patients attending a

health center in another community setting. The inter-rater reliability between the research assistants was 0.85.

1.3 Instrument for blood pressure measurement

The “gold standard” for the office BP measurement has been the automated sphygmomanometer for clinical measurement of BP (Chobanian, et al., 2003; O’Brien, 2003; Pickering, et al., 2005). A standardized automated sphygmomanometer was used for measuring SBP and DBP in this study. Blood pressure was measured by the research assistant according to a standardized protocol of the European Society of Hypertension (ESH) and European Society of Cardiology (ESC) guidelines (2007) using a calibrated cuff . The process for obtaining the BP and calibration was as follow:

1.3.1 Participant preparation

1) The participant was seated comfortably with their back supported and the upper arm bared without constrictive clothing, with both feet lying flat on the floor for at least 5 minutes in a quiet room, with an empty bladder

2) The participant was instructed to abstain from drinking either caffeine or alcohol containing beverages and tobacco use within 30 minutes before the BP measurement.

3) The participant was instructed to relax as much as possible and to not talk during the measurement procedure.

1.3.2 Blood pressure manometer calibration was tested for accuracy by the manufacture company. The calibrated cuff from the OMRON Company on May, 2011 reported the manometer failure rate of 0.2% out of less than 0.5% (Canzanello, Jensen and Schwartz, 2001).

1.3.2 Clinical BP measurement techniques

1) The arm was supported at heart level, and the bladder of the cuff encircled at least 80% of the arm circumference, with its lower edge within 2.5 cm of the antecubital fossa.

2) The BP measurement was obtained immediately, and 1 minute after assumption of the standing position in older participants, diabetic patients, and in other conditions. If the SBP in the standing position was is lower than sitting position by greater than 20 mm Hg, in which postural hypotension was suspected.

3) At initial visit, BP was checked in both arms at the first measurement. The arm with the higher BP had been used for continuing BP monitor. At the third and the six month, two measurements of BP on the same arm side that had highest BP in the first measurement were taken each time, and the average of those readings was used to represent the patient's BP as the outcome of this study.

2. Instrument for the research experiment

1.1 The Multicomponent Proactive Nursing Program for Caring Hypertensive Older Person in Community: A Nurse Manual

The Manual for the MPN was developed by the researcher applying the Chronic Care Model (Wagner, 1998) and clinical practice guidelines for HTN (Chobanion, et al. 2003; Thai Hypertension Society, 2008). This was done for the purpose of improving BP control, self management skills, proactive delivery of care provided by a nursing care team (including nurse, public health officer and

community health volunteer) and increased satisfaction with nursing care. Twelve weeks were allocated for BP control improvement and self management skill training.

The manual included the goals of each session, materials, and content written in an interactive education plan, for older hypertensive patients and family caregiver training. The strategies for community health volunteer and family caregiver to facilitate self-management skills among older hypertensive patients and detailed guidelines for nurse, public health officer, and community health volunteer to provide proactive care at the health centers and the residence of participants were included. At the monthly meeting among proactive care team members monitoring and evaluating BP control of the participants and the process of proactive nursing care task was discussed. The proactive nursing care task was reported monthly in the Proactive Home Visit Plan for Nurse, the Conference Report Form, List of Follow-up Appointment Form, and the Family Folder of participants (see the Manual) (Appendix F). The set of written HTN material consisted of three booklets and three flip charts dealing with the following topics: (1) “Do you know hypertension… adhere to antihypertensive medication…can control of blood pressure”, (2) “Can Exercise lower blood pressure”, and (3) “How to eat for lowering your blood pressure” (see the Booklets) (Appendix G).

1.2 The Self-Management Booklets and Flip Chart for older hypertensive persons and family caregivers consisted of three booklets

The first booklet is entitled “You know hypertension… adhere to antihypertensive medication…can control of blood pressure. The following topics are covered: (1) what hypertension is, (2) how to control blood pressure (3), side effects of antihypertensive medications and problem solving, (4) how to effectively take

antihypertensive drugs (5) how to problem solve when you have forgotten the antihypertensive drugs (see the First Booklet) (Appendix G).

The second booklet is entitled “Exercise can lower blood pressure”. The information has detail as follow: (1) the useful of exercise, (2) principle of exercise, (3) physical activity and exercise recommendation for older person, (4) Thai wand exercise, and (5) caution of exercise (see the Second Booklet) (Appendix G).

The third booklet is entitled “How to eat for lowering your blood pressure”. The topic covered are as follows: (1) What Dietary Approaches to Stop Hypertension (DASH) is, (2) DASH diet guidelines, (3) one daily servings from various food groups, (4) the DASH eating plan (5) avoiding excessive sodium diet, (6) how to make the DASH, (7) sample meal plans, and (8) a sample of Thai traditional food (see the Third Booklet) (Appendix G).

1.3 The Health Mentoring Manual for Community Health Volunteer

The manual included the goals of each session, materials, and content for health volunteer training; job description for facilitating self-management skills among older hypertensive patients; detailed guidelines for visiting the home to promote and monitor self management behaviors among older hypertensive patients; and proactive home visit plans monthly, to record the health status and results of practicing self management behavior among older hypertensive patients (see the Health Mentoring Manual) (Appendix H).

The researcher described the MPN program in three topics (1) the proactive nursing program development, (2) the proactive nursing program trial, and (3) the proactive nursing program modification as follow:

1. MPN program development

The MPN program was developed based on the CCM (Wagner, 1998), described in the Chapter 2. Based on the literature reviewed, on predicting factors of BP control in Thai and other countries (both eastern and western) it has been found that older hypertensive patients have poor BP control including; lack of knowledge of HTN, unhealthy lifestyle, and lack of medication adherence (Wichai Aekplakorn et al., 2005; Health Assembly, 2009; Sukanya Sakcomeduang, 2009; Wang & Vasan, 2005). In Thailand, the only existing medical care in some areas, are clinics with a focus on treating, rather than on education or prevention of disease. As a result, a need assessment was employed by the researcher from a focus group. In this group, an interview took place with five open ended questions based on the CCM structure. There were 25 target informants participating in this review including; ten older hypertensive patients with their caregivers and five health care providers employed at the health centers. This information was basis for and that facilitated the effective development of the program. The MPN program provided the knowledge and practice skills to manage the healthy behaviors, with support and assistance to conduct self-management, from their family caregiver and a community health volunteer and proactive care team, tasked to improve BP control. This program was flexible and allowed for group and individual implementation.

This program was composed of four strategies that covered the three sessions of implementation within twelve weeks. The four strategies of this program were as follows:

1st Strategy: Self management support

- Interactive group education
- Promoting caregiver ability
- Reinforcement by using reward

2nd Strategy: Deliver system design consisting of three of the following activities:

- Proactive home visit
- Health Mentoring
- Follow-up reminder system

3rd Strategy: Decision support consisting of two activities:

- Dynamic staff training system
- Hotline consultancy for onsite visit of community health volunteer

4th Strategy: Clinical information system consisting of two activities:

- Monitoring BP control rate
- Evaluation and plan development

The details of the program are in the Manual of Multicomponent Proactive Nursing Program (see The Manual).

The materials of this program were composed of booklets, flip charts, and the diary report for self management behavior for enforcing the knowledge and practice skills for HTN management.

2. The MPN program trial

The manuals, booklets, and flip charts are reviewed by seven experts for content validity including a medical physician who has experience in caring for older hypertensive patients, a public health physician who has experience in chronic health management based on The CCM, a public health nurse instructor and a senior nurse

instructor who have experience in taking care of older patients with chronic illness in the community, a community nursing instructors who have experience in nursing administration and home care for chronic illness in the primary care setting, an advanced practice nurses in gerontological nursing and an advanced practice nurse in community nursing who has experience in caring older hypertensive patient in community. The manual was revised according to the recommendation of these seven experts (Appendix F).

Because the feasibility of the program was important, a pilot study was conducted on ten patients who had similar characteristics to the participants in the study. The objectives for conducting the field testing were to: 1) determine the feasibility of the proposed study, 2) identify the problems with implementation of the MPN program, and 3) examine the validity and reliability of the research instruments. The results indicated that the appropriate setting for training should be at the patients' residence, rather than at the health centers because patients liked the familiarity of their home and were accustom to their own place. They also preferred walking as a form of exercise and Thai wand exercise because it was simple to perform. In addition, older patients' family caregivers said that they were willing to support older patients' needs if it would improve their health. Moreover, community health volunteers also were willing to care for elders. So mobilizing community health volunteers to mentor and support them became a strategy of this program for these older hypertensive patients. Finally, the program was found to be appropriate for all older hypertensive patients, family caregivers, and community health volunteers.

3. The MPN program modification

The experts and the results of practice sessions suggested that the researcher should: modify the protocol of the program by combining some sessions together; eliminate the complicated content such as grouping antihypertensive drugs; and provide weekly group education each session. As a result of these recommendations, the researcher modified the content of the program and offered weekly group education over three weeks.

4. Instruments for Monitoring Experiment

There were two instruments for monitoring the intervention in this study: (1) the self report for self management behavior form for the older hypertensive patients and (2) the hypertensive self management's knowledge test. To follow is a description of these instruments.

4.1The self management behavior report form

The self report for self management behavior form was developed by the researcher for the participants in the experimental group, to monitor and record the achievement of their goals through self management behaviors. This form was a document for the individual to plan their composing of collaborative action plan. The plan was composed of four activities to improve self management skills including; 1) the problem assessment and goal setting; 2) the preparation for self management; 3) the practice for self management; and 4) the evaluation for self management behavior. The participants were instructed to monitor their daily self-management while staying home. This booklet (as described previously), was evaluated by seven experts. In addition, the researcher corrected the booklet at the suggestion of experts to make it the easiest, most convenient and practical for participants that might be lay

persons or of low educational preparation. Following these modifications, the researcher tested the change in five older hypertensive patients who had completed elementary school, and made more modifications to obtain the final product (Appendix J).

The results from implementing the program showed most of participants (94%) in the experimental group adhered to medication by pill count technique. Three participants discontinued to take medication, were uncompleted the intervention. Nearly half of them had brisk walking or jogging (44%) followed by Thai wand exercise (40%), with adequate exercise recommendation both intensity and frequency. Considering DASH diet consumption, there were 60% have eaten everyday and 40% more than three days per week (Appendix N).

5. The hypertensive self management knowledge test

This instrument was for the assessment and evaluation self management knowledge for hypertensive patients. It was developed by the researcher based on literature review and the items were created which covered the most important content. The test addressed the understanding of the key hypertensive self management content and included three tests: 1) taking antihypertensive medication, 2) exercise to lower BP, and 3) DASH diet consumption. This test was administered weekly after each session of education in a private setting, to determine the participants' understanding of a healthy lifestyle. It consisted of 32 items with a dichotomous answer for choosing; "correct or incorrect" (correct = 1 point, incorrect = 0 point). The total score ranged from 0-12 for taking antihypertensive medication test; 0-10 scores for exercise to lower BP test and DASH diet consumption test. For the older hypertensive patient, the level for passing was established at 80% of the total

score in each test (10 out of 12 scores or 8 out of 10 scores). If any participant could not reach this level, the researcher gave a chance and allowed them to ask and review their knowledge again until they understood and performed self management behavior. The mean of hypertensive test scores were 10.64 (SD = 1.19), 8.44 (SD = 1.13) and 8.38 (SD = 0.99) of taking medication, exercise and DASH diet consumption test, respectively (Appendix M). There were 12 out of 50 participants (24%) who had low knowledge scores, and had to take the test again until they met criteria of scores, indicating they had sufficient knowledge to properly perform self management behavior (Appendix K).

Experimental Procedure

This section was divided into 3 phases including preparation, implementation, and evaluation. Details of these procedures are described below:

1. Preparation Phase

1.1 Instrument preparation

The manual of the PNP, materials for this program, and an instrument were developed by the researcher and with content validity established by seven experts.

1.2 Research, research assistant, and community health volunteer preparation

Before conducting the research, the researcher prepared the research assistant who was a volunteer nursing instructor with doctoral degree in gerontological nursing from the School of Nursing, Walailak University. She administered the questionnaire to the participants. The information necessary for this research assistant, such as objectives of the program, procedures, the questionnaires,

and BP measurements used in the study, were provided. To ensure the mutual understanding of the factors mentioned above, the research assistant was provided the opportunity to ask questions and was queried regarding the procedures. Answer was provided and clarification obtained until the assistant demonstrated a correct understanding of the entire process of the intervention. In addition, the assistant was trained to use all the instruments. The research assistance's role was obtaining the pretest and posttest data in both the experimental and control groups. The researcher provided the knowledge and trained the health volunteer under they achieved competence as a health mentor for older hypertensive patients. This included the content of the CCM, hypertensive self management and proactive home visit at the health center as well as gave providing a manual of health mentoring for community health volunteers (see the Manual, Appendix F).

1.3 Field research preparation

The researcher informed the director of health centers, and collaborated with the staff nurses of chronic care service at both health centers. The objectives, procedures, and the approximate length of time for data collection were described. In addition, the researcher also requested and prepared the community area for the interactive group education of the PNP implementation.

2. Implementation phase

2.1 Procedures in the control group

The participants in the control group completed the personal data sheet and patient satisfaction with nursing care questionnaire (PSNQ) for pretest and were the BP was taken at baseline. This group received the routine care during the 12 weeks. Routine care referred to the conventional health information that was given by a nurse,

physician, and other health care provider caring hypertensive patients at the health centers. The routine care consisted of medication refills, individualized and group health information for those caring for hypertensive patients. In routine care (as well as the MPN program group), a brochure was given to each patient, describing HTN, lifestyle modification, and information about taking hypertensive medication. Individualized and group health information was provided by a nurse at the health care clinics on monthly follow up visits for each patient. Referral services were provided for patients with complications, or those needing modifications of prescription based on the clinical guidelines for hypertension. These participants completed the posttest PSNQ at 12 weeks (following completion of the intervention period for those paired in the treatment group, and received the HTN booklet when they followed up at the health centers. For BP monitoring, the BP was taken were taken BP monthly over six months during monthly follow up visits at the health centers.

2.2 Procedures in the experimental group

The researcher provided the MPN program to the participants in the experimental group. This program was conducted in four parts as follows:

2.2.1 Self management support

Objective: Develop trust and a relationship with the participants, their families, health volunteers, and the researcher

1. To improve knowledge and self management skill for older hypertensive patient

2. To promote caregiver ability to facilitate and care older persons

3. To develop competency among health volunteers to mentor older patients to perform self management behaviors

Activities: Older hypertensive patients received the MPN program in the community setting. The researcher provided the interactive group education at each session. The learning session was tailored for encouraging and improving individual knowledge and self management skills each learning session was conducted by the researcher over 3 months including:

The content of each session was presented by using the flip chart of hypertensive self management practice for caring older hypertensive patients There were 3 sessions as following:

Session 1 Taking medication: entitled "You know hypertension… adhere to antihypertensive medication…can control of blood pressure". The booklet provided information on the following topics: (1) what hypertension is, (2) how to control BP (3), side effects of antihypertensive medications and solving, (4) how to effectively take antihypertensive drugs (5) how to solve problems when you have forgotten antihypertensive drug (see the First Booklet).

Session 2 Exercise: entitled "The second booklet was entitled "Exercise can lower blood pressure". The information provided in this booklet included: (1) the benefits of exercise, (2) principles of exercise, (3) physical activity and exercise recommendation for older person, (4) Thai wand exercise, and (5) cautions with exercise (see the Second Booklet).

Session 3 DASH diet consumption: The third booklet was entitled "How to eat for lowering your blood pressure". The information provided

included: (1) What Dietary Approaches to Stop Hypertension (DASH) is, (2) DASH diet guideline, (3) one daily serving from various food groups, (4) the DASH eating plan (5) avoiding excessive sodium diet, (6) how to make the DASH, (7) sample meal plans, and (8) sample Thai traditional food (see the Third Booklet).

All of activities of interactive group education were following self management process and interactive group discussion, brain storming, story telling, and scenarios. All activities were followed self management process including:

1) The problem assessment and goal setting activities were performed in each interactive group education among the researchers, older hypertensive patients, their family caregiver, and community health volunteer. The aim of the assessment was reviewed such as, the problems that were barriers to self management practice as well as lowering BP. The priority of the problem was selected by the family caregiver together with older patient to set up individualized self management behavior to lower their BP. The established goal was therefore mutual between the nurse and the participant. The goal setting was measurable, specific, attainable and relevant. The priority problem and the goal definition were set up for individual change in behavior and stated in terms of participant achievement written in the self-report for self management practice form.

2) The preparation for self management activity involved enhancing the participants' knowledge and self management skill through interactive group education including taking hypertensive medication, exercise to lower BP control, and DASH diet consumption. All of content was written in the booklets to inform the patient of self management information.

3) The practice sessions for self management activities were provided by the researcher to describe and demonstrate any behavior that the participant needed to know or change. The researcher also advised the participant to select the behavior that would lead to meeting their goals by using the importance-confidence ruler. The importance-confidence ruler was a technique that incorporated many basic elements of empowering and collaborating. Furthermore, the ruler yielded for practitioners a clear sense of how ready the participant was for change, and how to be most helpful. The researcher, together with the participants tailored the steps of practicing and wrote them in the self-report form in order to personalize the report. The participant was encouraged to commit themselves to act on each step while they live were at home.

4) The evaluation for self management was based on monitoring, or observation, and recording of data by the participants or their caregivers. It was an important condition to determine if goals were achieved. Participants could record daily their self management practice for taking hypertensive medication, regular exercise, and DASH diet consumption at home by using the form. Their participation in this exercise was evaluated by the presence of a mark in each part everyday. In each part, participants placed a check mark for setting their goal, activities, and results about the frequency and competency of conducting. The participants were asked to monitor themselves according to the checklist in this form for 12 weeks after recruitment to the program. In each home visit schedule, participants showed this self-report form with him/her to ensure that each participant kept track of this procedure. There were three participants who failed to follow this monitoring procedure and were excluded from the study.

2.2.2 Delivery system design

Objective 1. Monitor and encourage completing of self management diary and reinforcement to continue performance.

2. Detect complications of hypertension and provide specific nursing care for complex problem among older hypertensive patients.

3. Encourage the subject to keep regular follow up appointment

Activities: During the second week of the 1st, 2nd and 3rd month the researcher and the health volunteer visited each participant at the older hypertensive patients' residence. This session focused on monitoring the participants' self management behavior and supported them to regularly perform this activity.

1) Assessment of self management behavior of the older patient through interviewing and discussion of their performance with new one and the problems occurring while living at home together with solving the problem.

2) The participant and family together shared information regarding their problems and needs including competency, and available resources.

3) Self management support was focused on during this visit. The researcher confirmed the instruction data with their family to daily monitor and supported the older patient at their residence. The community health volunteer visited them twice a month to encourage them.

4) Encouraged participants to follow up at the chronic care clinic following their health center appointment.

5) Monitored the community health volunteer to provide regular psychosocial support to the patient and family at least twice a month, while encouraging the family to assist the older patient in sustainable healthy behaviors and in integrating their newly modified health behaviors.

6) Arranged the follow up schedule for each participant and provided reminders by an appointment card and verbal reinforcement reminders from the community health volunteer (during the twice monthly home visits).

7) Set up the simple pathway by using telephone call to access service.

2.2.3 Decision support

Objective 1. To Improved competency for caring older hypertensive patients among community health volunteer and a public health officer as a member of the proactive care team.

2. To encourage the proper decision making of community health volunteer for caring among older hypertensive patients while visiting their residence.

Activities: There were activities as follows:

1) Provided the available telephone line to give information and problem solving method following the hotline consultancy guideline by the researcher. It is available on business time for community health volunteer, public health officer, and family caregiver.

2) Telephone calls follow up by the researcher using telephone calls after the each interactive group education 1 week for 3 times around 10-15 minutes in each participant to deliver information support, monitor self management

behavior, enhance motivation, and foster problem-solving, as well as to ensure the participant's understanding of the hypertensive self management plan. This activity would end at the 3rd month.

2.2.4 Clinical information system

Objective 1. Monitored and evaluated BP control among the participant .

2. Develop proactive home visit plan for caring the participant

Activities: There were activities as follows:

1) Review clinical data to evaluate the quality of care once a month.

2) Arrange health care team meeting once a month (the end of the day in each month) over 3 months and two sections of activities as follows:

2.1) presented the clinical information to evaluate the quality of care by considering the BP level and home visiting report of the researcher and the community health volunteer.

2.2) case conference was carried out to develop the home visit plan for older hypertensive patients who were still suboptimal BP control. The researcher provided the specific care need of older patient through the health problem presented by each community health volunteer.

3) Consulted internal medicine specialist to provide prompt treatment at Tha Sala Hospital or provided refer to proper management when elevate BP of hypertensive older patient to be stage 2 hypertension (SBP >160 mmHg and/or DBP > 110 mmHg based on JNC-7 guideline (Chobanian et al., 2003) and/or complication was detected.

3. Evaluation phase

The final phase was the evaluation the effects of MPN program that included the outcome evaluation and terminate the program. This phase was conducted at the health centers 12 weeks aimed to evaluate the long term goal of participant in the experiment group by the researcher and to obtain the data about PSNQ for posttest and BP control for posttest and follow up in both groups by a research assistant. This phase needed the interactive between the participants in the experiment groups and the researcher about the evaluation of their long term goal accomplishment. The participants in the control group were also received the hypertensive self management booklet in the day of follow up. All the participants were reinforced to continue self management behaviors. In addition, researcher thank you all the participants for their cooperating in this study. The activities were shown based on the major strategy of the CCM in Appendix O.

Data Collection

In this study, the time spent for implementation the program was three months and for follow up to monitor BP control was three and six months. Consequence, the length of time for this study was 6 months. The procedures for data collection were described as following:

1. Researcher brought the letter from faculty of nursing, Chulalongkorn University to the director of Tha Sala hospital for the ethical approval and data collection permission.

2. After that, this study was proved the ethical from the Committee on organization and human rights relate to human experimentation of Tha Sala hospitals, and permission for the data collection (Appendix Q).

3. The researcher coordinate with a Chief of the selected health center, Chief of sub-district Administrative Organization, chief of villages from sub-district sample, and Village leaders in order to explain the objectives, the method and data collection in the setting of the research and time schedule.

4. When the patients who met the inclusion criteria attended at two selected health centers were allocated either to the experiment or control groups and matched pair based on gender, presence of diabetes, and type of medication.

5. The nurse researcher assistant approached and explained the objectives, procedures, and the protection of human right of the participants. Once they decided to participate in this study, they have to sign the consent form (Appendix P).

6. The obtaining data for pretest was conducted by a research assistant on a screening appointment at the health centers which included the personal data, PSNQ, and took BP following the guideline. Blinding between the participants and research assistants who collected the pretest and posttest data would be used for controlling confounding factors, decrease bias, and increase validity of the outcome.

7. The participants in the control group received the routine care, while participants in the experiment group received the routine care and PNP from the researcher.

8. The obtaining data for posttest was conducted by a research assistant at 3 and 6 months when they followed up at the health centers.

9. Researcher checked the questionnaire and cleaned the data prior to data analysis.

Protection of Rights of Human Subjects

The permission letter for data collection from the Faculty of Nursing was sent to the Director of Tha Sala hospital where supervises the selected health centers of this study and the data was collected. Ethical approval for this study was obtained through the Committee on organization and human rights relate to human experimentation of Tha Sala hospitals, prior data collection. The potential participants who met the inclusion criteria was informed by the researcher and research assistant of the proposed of the study, procedure, potential, risk/benefits, and right to confidentiality. The participants learned about hypertensive self management which helped them to take care of themselves and improved BP control. The written information was declared all the rights the participants had (Appendix P). The participants were clearly informed of their rights to terminate at anytime with no consequences at all. They were assured that their willingness to participate in the study had no implication for the health care services that they received. Their decisions to discontinue participating in the study did not affect their relationship with health care providers or their access to any services available at the hospital and the health centers.

This intervention was presented no harm at all to the participants, and did not interrupt with the routine nursing care or medical care. It also made the effective nursing care to encourage older hypertensive patients' self management behaviors. Then BP was decreased in these participants. Throughout the study process, the researcher made attempt to avoid any possibility of discomfort, interference, over excessive response burden on the participants. Confidentiality of data collection was ensured both during and after data collection.

Data analysis

Data from questionnaires was entered in to a worksheet of SPSS version 16. The assigned study number was used for the data of each subject ensured the anonymity of the participants. Data was entered twice in two separated files in order to identify errors. These files were compared to identify inconsistencies. Data cleaning strategies by using frequency, minimum and maximum values were used to identify coding error or entry error.

Statistical analyses were performed with the Statistical Package for Social Sciences for Window with a significance level set < .05 as follows:

Descriptive statistics was used to describe the demographic characteristics of the participants and dependent variables with frequency, range, mean, standard deviation, and percentage.

Independent t-test or Chi-square test was used to compare the demographic characteristics of the participants and dependent variables between the participants in the experiment and control groups at the baseline.

A repeated measures analysis of variance was used to test the hypotheses. If the overall F was shown significant difference, post-hoc analysis was used to find differences between pairs of scores.

Also, the independent sample *t*-test was used to test for differences in the mean of the PSNQ scores in both the experiment and control groups between baseline and post intervention. *Chi-square* test statistics were used to compare the proportion of participants achieving BP control in each arm of the study at baseline, three months, and six months after intervention finished. The assumption of this statistics was tested before analysis.

CHAPTER IV

RESEARCH RESULTS

The purpose of this study was to develop and examine the effects of a three month multiple proactive nursing (MPN) program applying the chronic care model on the BP control and satisfaction with care in older hypertensive individuals. The sample was composed of 100 participants at health centers in two rural health center settings in southern Thailand. All the participants meeting the eligibility criteria were randomly assigned to either the experimental or control group. Matched pairs of participants were allocated to the two arms, resulting in 50 participants in each group. Participants in the experimental group received usual care and the MPN program, whereas participants in the control group received only usual care from health care professions. The personal data and the primary study outcome of BP control, was collected at the baseline for pretest. The BP readings were collected at 3 and 6 months after completing the program for posttest analysis. Satisfaction with nursing care was the secondary outcome. This data was collected at baseline and 3 months after completing the experimental for pretest and posttest analysis. These data were analyzed to answer the research question. The research findings are presented in four parts.

Part 1: The descriptive analysis of the personal characteristics and comparison of SBP and DBP both groups are presented.

Part 2: The assumption testing of a repeated measures analysis of variance (ANOVA).

Part 3: The results congruent with the hypotheses.

Part 4: The effect size of this study.

Characteristics of participants

From the possible 114 HTN patients at the clinics who met the inclusion criteria, between June and August 2011, seven participants in each group dropped out (Figure 3). The participants were allocated, in pairs, to either the PNP or routine care in equal numbers (n = 50/group) and equally distributed to either of the two clinics. The mean age of participants was 69 years (SD = 5.26). Most were female (76%), married (59%), completed elementary school (77%), and were Islamic (56%). Half of the participants had an average income of 5,518 (SD = 2885.4) baht per month and described themselves as having sufficient income (52%) (Table 4).

Table 4 Participant characteristics at baseline (n=100)

Characteristics	**Control group (n=50)**		**Experimental group (n=50)**		χ^2	*df*	*p*-value
	n	**%**	**n**	**%**			
Age (years)					1.09	1	.30
60 – 69	27	54	31	62			
70 – 79	23	46	19	38			
Range = 60-79, *M* = 68.9, *SD* = 5.3							
Gender					0.00	1	.12
Female	38	24	38	24			
Male	12	76	12	76			
Status					6.62	2	.06
Single	1	2	3	6			
Married	35	70	24	48			
Widow/divorce/ separate	14	28	23	46			
Religious					1.46	1	.28
Buddhist	19	38	25	50			
Islam	31	62	25	50			
Education					4.83	3	.25
No literate	9	18	6	12			
Elementary	39	78	38	76			
High school	1	2	4	8			
Diploma/Bachelor	1	2	2	4			
Income					2.63	1	.11
Insufficient	17	34	24	48			
Sufficient	33	66	26	52			
Range = 500-14,500 baht, *M* = 5518.1 baht, *SD* = 2885.4							

More than half of the participants (55%) had a BMI over 23 kg/m^2 and an average waist hip ratio 0.97 (SD = 0.21) centimeters. There were no differences between groups in initial mean pre-experimental BP (150/82 mm Hg) but significantly different resting pulse rates (p =.004) of 5 beats per minute lower in the experimental group. Participants had been diagnosed with HTN for an average of 5.54 (SD = 3.5) years with most taking two antihypertensive medications daily. Most (62%) did not have diabetes (Table 5). Baseline physiological status between groups did not differ significantly.

Table 5 Physiological status among participants at baseline (n=100)

Characteristics	**Control group (n=50)**		**Experimental group (n=50)**		***t***	***df***	***p*-value**
	n	**%**	**n**	**%**			
BMI* (kg/m^2)					.34	98	.734
≤ 23	22	44	23	46			
>23	28	56	27	54			
Range 15.9-44.7, *M* = 24.2, *SD* = 5.0							
WHR** (*M*, *SD*)	0.96	0.09	0.97	0.28	-.55	98	.548
Pulse rate (*M*, *SD*)	78.2	13.2	73.2	7.4	3.0	3.02	.004
BP*** (mm Hg) (*M*, *SD*)							
Systolic	149.6	6.2	149.9	6.1	-.61	98	.544
Diastolic	84.0	10.2	80.2	8.4	1.68	98	.095
Duration of HTN (years)					-1.88	98	.064
1-5	35	70	20	40			
6-10	13	26	24	48			
> 10	2	4	6	12			
Range = 1-17, *M* = 5.5, *SD* = 3.5							
Type of medication					χ^2=0.00	2	1.00
1 agent	4	8	4	8			
2 agents	38	76	38	76			
3 or more agents	8	16	8	16			
Presence of DM					χ^2=0.00	1	1.00
Non DM	31	62	31	62			
Have DM	19	38	19	38			

*BMI: Body Mass Index, **WHR: Waist Hip Ratio, ***BP: Blood Pressure

Results

The results of the three hypotheses.

1. Older hypertensive patients in the experimental group would have significant higher proportion of achieving blood pressure control than those in the control group at the third month and at the six month after the interventions.

More importantly, no one at baseline met target blood pressure values. Good BP control is generally considered to be less than 140/90 mm Hg, for diabetics or chronic kidney disease, controlled BP is defined as less than 130/80 mmHg (Chobanian et al., 2003). The participants were randomized in the intervention group was lower than those randomized in the control groups at the first month, but was significantly different at the third month, (χ^2 (1, N = 100) = 13.04, $p < .001$) and the six month, (χ^2 (1, N = 100) = 7.85, $p = .005$). The participants in the intervention group (72%) had greater BP control than the usual care group (36%) (Table 6).

Table 6 the proportion of participant in control of blood pressure

Blood Pressure Control	**Control Group (n=50)**		**Intervention group (n=50)**		χ^2	***p*-value**
	n	**%**	**n**	**%**		
Baseline					N/A	N/A
Controlled	N/A	N/A	N/A	N/A		
Uncontrolled	50	100	50	100		
The 3rd month					13.04	.000
Controlled	32	64	36	72		
Uncontrolled	18	36	14	28		
The 6th month					7.85	.005
Controlled	17	34	31	62		
Uncontrolled	33	66	19	38		

At baseline, all participants in both group had stage I HTN (100%). At posttest, most of participants assigned to the experimental group (80%) had the Pre-HTN followed by the Stage I (18%). For the control group, nearly half (48%) and one third (36%) of participants had Pre-HTN and Stage I, respectively. At follow up, most of the experimental groups' BP still was in the Pre-HTN (60%) and stage I (34%). Nearly half of participants assigned in the control group had Pre-HTN and Stage I of 46% and 42%, respectively. Details the stages of HTN of the participants are shown in Table 7.

Table 7 the percentage of participants classified by stage of hypertension (n=100)

Classification of HTN*	**Baseline**		**3 months**		**6 months**	
	n	**%**	**n**	**%**	**n**	**%**
Control group (n=50)						
Normal	-	-	1	2	-	-
Pre-HTN	-	-	24	48	23	46
Stage I	50	100	18	36	21	42
Stage II	-	-	7	14	6	12
Experimental group (n=50)						
Normal	-	-	1	2	3	6
Pre-HTN	-	-	40	80	30	60
Stage I	50	100	9	18	17	34
Stage II	-	-	-	-	-	-

* Classification of BP based on the Seventh Report of the Joint National Committee (JNC-7) guideline (Chobanion et al., 2003) to determine level of normal blood pressure and high blood pressure, including **Normal** refers to SBP < 120 and/or DBP < 80 mm Hg; **Pre-HTN** refers to SBP = 120-139 and/or DBP = 80-89 mm Hg; **Stage I** refers to SBP = 140-159 and/or DBP = 90-99 mm Hg; **Stage II** refers to SBP ≥ 160 and/or DBP ≥ 100 mm Hg

2. **Older hypertensive patients in the experimental group would have significant differences in means SBP and DBP across the three time periods from baseline to the third and sixth month after the interventions and and significantly lower mean differences of SBP and DBP at all time periods than those in the control group**.

Preliminary analysis to examine the assumption testing of repeated measures ANOVA

A one-way repeated measures analysis of variance (ANOVA) was used to determine if participants' BP control improved across time and by group. The dependent variables for the ANOVA were SBP and DBP (pretest, posttest, and follow-up) and the independent variable was group (experimental and control). The assumptions for the repeated measures ANOVA were tested before further analysis. The following assumptions were examined to ensure the validity of statistical calculations.

1. Normality distribution of dependent variables was tested. The two dependent variables, SBP and DBP, were not accepted as a normal distribution because the skewness and kurtosis values of each dependent variable were far to zero including kurtosis value of SBP at baseline in both groups and 3 months in the experimental group were -1.551, -1.399, 1.286, and respectively; and skewness value of SBP at 3 months in the control group was 1.205 demonstrating small negative kurtosis and small skewness. Fisher's measure of skewness and kurtosis was calculated by dividing the skewness or kurtosis value by the standard error for skewness or kurtosis (see Table 7) (Duffy & Jacobsen, 2001, p. 44). Values above +1.96 or below -1.96 are significant at the .05 level. These results indicate that this

distribution is significantly skewed and signifies kurtosis. Fisher's measure of kurtosis for the SBP at 3 months (1.286/.662) was 1.943, which is below +1.96 indicating this variable violated an assumption of normal distribution. However, this was a study of 100 participants considered a large sample size. In most situations for which a sample is more than 30, the distribution is almost normal, which is based on *Central limit Theorem* (Gravetter and Wallnau, 2004, p. 205-206). In sum, an assumption of normal distribution had been met (Table 8).

Table 8 Skewness and kurtosis of SBP and DBP among participant in both group (n = 100)

Time	Control group				Experimental group			
	Skewness	**SE of Skewness**	**Kurtosis**	**SE of Kurtosis**	**Skewness**	**SE of Skewness**	**Kurtosis**	**SE of Kurtosis**
Systolic Blood Pressure								
Baseline	.077	.337	-1.551 (-2.343)*	.662	.151	.337	-1.399 (-2.113)*	.662
3months	1.205 (3.576)*	.337	2.770	.662	.319	.337	1.286 (1.943)*	.662
6 months	.401	.337	-.358	.662	-.218	.337	.048	.662
Diastolic Blood Pressure								
Baseline	-.580	.337	.193	.662	.087	.337	-.432	.662
3months	-.518	.337	.543	.662	-.100	.337	-.220	.662
6 months	-.036	.337	-.656	.662	.180	.337	-.773	.662

* Fisher's measure of skewness and kurtosis

2. Homogeneity of variance is required. Box's test of equality of covariance matrices produced *p* values of .000 for both SBP and DPB, indicating significant differences. While they indicated unequal levels across the between-subject factor of variance-covariance matrices, but they did not show significance in Mauchly's test of

sphericity. This means that homogeneity of variance did not violate the assumption. All dependent variables were accepted as having homogeneity of variance.

3. Compound symmetry was tested SBP (p = .251) and DBP (p = .198), with these variables having no significance on Mauchly's test of sphericity. The assumption of compound symmetry had been met.

As presented in Table 9, SBP of participants in the experimental group (M = 150.12, SD = 6.21) were higher than the control group pretest SBP (M = 149.37, SD = 6.13). However, over time, the experimental groups' SBP was lower than the control group at the third month (M = 131.49, SD = 9.69) and the sixth month (M = 134.61, SD = 11.38). The mean SBP in the control group on the other hand, remained relatively low even the end of the study (M = 141.04, SD = 12.74). Mauchly's Test of Sphericity indicated that the assumption of sphericity had been met, $\chi^2(2) = 2.765$, p = .251, therefore, a Sphericity Assumed correction was used. There was a significant effect of time on SBP in at least one pair at the three time points, $F(2, 196) = 48.851$, $p < .001$, indicating that the SBP of the experimental group was substantially reduced from the pretest to the follow-up. The interaction between group and time had also significant effect in SBP readings ($p < .001$) (Table 10).

At different time points, pairwise comparison showed SBP readings were significantly different between baseline and at any time point ($p < .001$) (Table 13). There was no significant difference in the SBP average between three and six month (p = .562) (Table 13).

Table 9 Comparison of systolic blood pressure readings between the control and intervention groups at baseline, 3 and 6months

Time Point	Control group(n = 50)		Intervention group (n = 50)	
	M	***SD***	***M***	***SD***
Baseline	149.37	6.13	150.12	6.21
3 months	142.34	14.27	131.49	9.69
6 months	141.04	12.74	134.61	11.38

Table 10 Repeated Measures ANOVA of Systolic Blood Pressure (n=100)

Source of Variation	*SS*	*df*	*MS*	*F*	*p*-value
Between subjects					
Group	2277.008	1	2277.008	14.494	.000
Within group (error)	15396.068	98	157.103		
Total	17673.076	99	2434.111		
Within subjects					
Time	10250.780	2	5125.390	48.851	.000
Group x time	1713.740	2	856.870	8.167	.000
Time x within group (error)	20564.147	196	104.919		
Total	32528.667	200	6087.179		
Total	50201.743	299	8521.290		

As presented in Table 11, DBP of participants in the experimental group (*M* = 80.50, *SD* = 8.82) was lower than the control group's at baseline DBP (*M* = 83.66, *SD* = 9.91). Moreover, over time, the experimental groups' DBP remained lower than the control group at the third month (*M* = 73.30, *SD* = 7.45) and the sixth month (*M* = 76.20, *SD* = 10.87); whereas the control groups' DBP remained relatively increased from the pretest to the follow-up (*M* = 84.67, *SD* = 7.02). Mauchly's Test of Sphericity indicated that the assumption of sphericity had been met,

$\chi^2(2) = 3.234$, $p = .198$, and, therefore, a Sphericity Assumed correction was used. There was a significant effect of time on DBP, $F(2, 196) = 7.775$, $p = .001$, indicating that the experimental groups' DBP substantially from the pretest to the follow-up. Interaction between group and time was no significant effect in DBP readings ($p < .001$) (Table 12).

At different time point, pairwise comparison showed DBP readings was significantly different between baseline and at posttest ($p < .001$), but not at follow up ($p = .225$). However, there was significant difference in mean SBP between the third month and the sixth month ($p = .010$) (Table 13).

Table 11 Comparison of diastolic blood pressure readings between the control and intervention groups at baseline, 3 and 6 months

Time Point	Control group (n = 50)		Intervention group (n = 50)	
	M	***SD***	***M***	***SD***
Baseline	83.66	9.91	80.50	8.82
3rd month	81.22	8.74	73.30	7.45
6st month	84.67	7.02	76.20	10.87

Table 12 Repeated Measures ANOVA of Diastolic Blood Pressure

Source of Variation	***SS***	***df***	***MS***	***F***	***p*-value**
Between subjects					
Group	3185.021	1	3185.021	38.269	.000
Within group (error)	8156.208	98	83.227		
Total	11341.229	99	3268.248		
Within subjects					
Time	1200.635	2	600.317	7.775	.001
Group x time	426.302	2	213.151	2.761	.066
Time x within group (error)	15133.897	196	77.214		
Total	15680.834	200	890.682		
Total	63314.489	299	4158.930		

Table 13 Comparison mean difference of systolic and diastolic blood pressure over time with pairwise comparison analysis

Time		Mean Difference	Standard Error	*p*-value
Systolic Blood Pressure				
Baseline	3 months	12.83	1.39	.000*
	6 months	11.92	1.39	.000*
3 months	6 months	-0.91	1.57	.562
Diastolic Blood Pressure				
Baseline	3 months	4.82	1.16	.000*
	6 months	1.65	1.34	.225
3 months	6 months	-3.18	1.22	.010*

*$p < .05$

3. Older hypertensive patients in the experimental group would report significantly higher mean satisfaction with care than those in the control group at the third month after interventions.

Regarding satisfaction, (Table 14), independent *t*-test was used to examine the difference between pre- and post-experimental satisfaction scores on the PSNQ. These was no significant difference between groups at baseline ($p = .340$), but there was significance by the third month, $t(84.91) = -9.88$, $p < .001$. The satisfaction scores were increased in the experimental group (4.33 points) compared to those in the control group (3.89 points).

Table 14 Comparison of mean of Patient Satisfaction with Nursing Care between groups noted at baseline and post-test measurement period (n=100)

Measurement period	Control group			Experimental group			*t*	*df*	*p*-value
	Min-Max	*M*	*SD*	*Min-Max*	*M*	*SD*			
Pretest	3.33-4.20	3.77	0.18	1.40-5.00	3.89	0.26	-.96	53.88	.340
Post-test	3.07-4.20	3.66	0.26	3.53-5.00	4.33	0.40	-9.88	84.91	.000*

*$p < .05$

Effect Size

The researcher calculated the standardized difference between means (Cohen's d) to determine the effect size, or the magnitude of the treatment effect. This statistic can be used in within-subject designs. The effect size presents the ability to detect an association between a predictor and an outcome variable (Browner, Newman and Cummings, 1998). The effect size is calculated by the following formula:

$$\text{Effect Size} = \frac{\text{Experimental group mean} - \text{Control group mean}}{\text{Control group standard deviation}}$$

Cohen has suggested that *d*'s of 0.20, 0.50, and 0.80 represent small, medium, and large effect sizes, respectively (Cohen 1992). The effect size at 3 and 6 months respectively was medium for SBP (0.76/0.50), large for DBP (0.91/1.21). In addition, the effect size was large for PSNQ 2.53 at 3 months.

Summary

Data analysis in this study was comprised of 50 participants in each group of two groups. Hypotheses testing was done using repeated measures ANOVA both SBP and DBP. Both variables met every assumption underlying the statistical testing. The characteristics of the samples in the experimental and control groups were not

significantly different at baseline. At 3 and 6 months, SBP and DBP variables were significantly different; both dependent variables supported the hypotheses.

Furthermore, satisfaction with the MPN program was also significantly better in the experimental than the control groups at 3 months. At this point in the study, the mean PSNQ scores were significantly higher than in the control group.

CHAPTER V

DISCUSSION IMPLICATION AND RECOMMENDATION

This chapter presents a summary of the study and a discussion of the research findings resulting from the effect of a multicomponent proactive nursing (MPN) program on blood pressure (BP) control and satisfaction with care in hypertensive older persons. In addition, the limitations of the study, implications for nursing, and recommendations for future research are described.

Characteristics of the participants

Most of the participants in this study (76%) were female aged 69 years and having completed elementary school (77%). These characteristics are congruent with the nature of chronically ill patients (Wuthisomwongkul, Thammanawat, In-Suk, Sonthirak, and Palakornkul, 2008). This is also consistent with previous studies which also showed a higher ratio of females with HTN to males (Babatsikou and Zavitsunou, 2010; Panbuadee Akachampaka and Nitit Watanamano, 2009; Pitsavos, et al., 2006), and also the percentage of BP control among hypertensive elderly was more often found in the females (14.4%) than males (10%) (Yaowarat Porapakkham, Janya Pattara-Archachai and Wichai Aekplakorn, 2008). Education for all Thai people has been limited in the past three decades especially in this country. Compulsory education for six years was only introduced 30 years ago by the Elementary Education Act of A.D. 1980. Thus, some persons who were born before 1980 had only four years of education or had not received a formal education (Boonchanaviwat, Saku, and Chaisutthi, 2005). Half of the

participants had sufficient monthly incomes. According to Wuthisomwongkul, et al. (2008) 59% of elderly with chronic illnesses had adequate monthly income. Nakhon Si Thammarat is mainly a Buddhist province with Muslims in the minority. However, in some districts, there are approximately equal numbers of Buddhists and Muslims (Horstmann, 2011). Similarly to this study, approximately half of participants were Islamic (56%) residing in Tha Sala district.

More than half of the participants (55%) had a BMI over 23 kg/m^2 and an average waist hip ratio 0.97 (*SD* = 0.21) centimeters, reflecting a higher than average weight and girth than the criteria for Asian people (WHO, 2004). There were no differences between groups in initial mean pre-intervention BP (150/82 mm Hg) but difference in resting pulse rates (p =.004) of 5 beats per minute lower in the experimental group. Participants had been diagnosed with HTN for an average of 5.54 (*SD* = 3.5) years with most taking two antihypertensive medications daily. Most (62%) did not have diabetes (Table 2). Baseline physiological status between groups did not differ significantly.

Summary of the study

This study was a quasi-experimental design with a control group, aimed to evaluate the effect of a MPN program on BP control and satisfaction with care in Thai hypertensive older persons. Testing was carried on both an experimental and a control groups at baseline, the third and sixth month. The Chronic Care Model (CCM) was the theoretical framework for this study.

Data collection was done at a community health centers in the southern part of Thailand. The patients who met the inclusion criteria were between 60-79 years of age, diagnosed with HTN receiving antihypertensive medication. Their systolic BP was 140 to 160 mm Hg and /or diastolic BP of 90 to 100 mm Hg on any two clinic visits in the previous a year while taking antihypertensive medication. They were living with their family caregiver, had good functional status, and no cognitive impairment. The sample was comprised 100 hypertensive older persons who attended the Pothong or Mokhlan community health centers. Subjects were allocated to either the experimental or the control group. During the study, there were seven participants who dropped out from both the experimental and control groups due to (three lost to follow up, three patients did not complete the intervention requirement, and one emigrated). Seven participants in the control group also did not complete the study of which two emigrated and five participants were lost to follow up. Finally, 50 participants were left in each group. Baseline characteristics in the two groups did not differ significantly except for baseline pulse rate.

The participants in the experimental group received the routine care and the MNP program whereas the participants in the control group received only the routine care from the health care professions. Those in the experimental group received routine care and a series of classes and home visits over a period of 12 weeks (Table 1). Classes were attended by the patient, usually in groups of 8 to 10 participants. Their caregivers and community health volunteers were encouraged to attend.

The focus of the classes was on self management, interactive group education. Group activities focused on education and skill training to promote health behavior change, with the goal of improving BP control. A verbal HTN knowledge test was administered weekly. This test was administered after each session of education in a private setting, to determine the participants' understanding of a healthy lifestyle and to encourage performing self management of their HTN at home. The participants (or their family caregiver), were asked to record daily in their diary self management changes their lifestyle. Home visits occurred once by the nurse researcher and once by a community health volunteer on the 2nd and the 3rd week in each month, respectively. During each home visit, the nurse researcher or community health volunteer reviewed the diary and recorded problems observed, specific assistance was provided as necessary, and the education essential to clarify any knowledge deficits. Monthly team member meetings were held with the nurse researcher to discuss any identified patient problems, possible solutions, and coordination of required medical care. Appropriate self management behavior included in HTN booklets were distributed in each group education. In addition, a set of written HTN materials were used in the study. A follow-up by verbal communication from the community health volunteer was made at weeks 4, 8 and 12. The participants in the control group attended chronic care services conducted by staff nurse of the community health center, received the routine care consisted of medication refills, individualized and group health information for those caring for hypertensive patients. In routine care (as well as the MNP group), a booklet is given to each patient, describing HTN disease, lifestyle modification, and information about using HTN medication.

Individualized and group health information is provided by a nurse at the health care clinics on monthly follow up visits for each patient. Referral services were provided for patients with complications, or needs for modifications of prescriptions based on the clinical guidelines for hypertension. The results of BP readings were obtained at baseline, 3 and 6 months. The patient satisfaction with nursing care questionnaire (PSNQ) was collected at baseline for pretest and 3 months for posttest.

The results showed improvements in both BP control and PSNQ significant in the experimental group but not the control group. The mean scores of systolic BP and diastolic BP were lower than in the control group at the third and the sixth month ($p < .001$). The percentage of BP goal achieve in the experimental group was higher than in the control group. The average systolic BP and diastolic BP in the experimental group were 131.49 (*SD* = 9.69), 73.30 (*SD* = 7.45) at 3 months and 134.61 (*SD* = 11.38), 76.20 (*SD* = 10.87) at 6 months, respectively. This was lower than in the control group where the average change were 142.34 (SD = 14.27), 81.22 (*SD* = 8.74) at 3 months and 141.04 (SD = 12.74), 84.67 (*SD* = 7.02) at 6 months, respectively.

Discussion

The discussion is described in the context of the three hypotheses.

1. Older hypertensive patients in the experimental group would have significantly higher number of patients achieved blood pressure control than those in the control group at the third and the sixth month after the interventions.

The results from this study indicated that it is possible to successful administer a Multicomponent Proactive Nursing (MPN) program in older patients with HTN. Despite the concern that participants with low education have difficulty understanding the content in intervention sessions (Polonsky et al., 2003), the patients who participated in the program increased their ability to improve BP control successfully compared to the control group. Because their knowledge was improved after completed interactive group education session (76% of them met 80% of the knowledge score) (Appendix M).

The mechanism, by which this improvement was achieved in this study, may have been related to goal setting for BP control and encouragement of patients to change their behaviors using group discussion, self-management and reinforcement by a home-visit approach. In the present study, patients were provided with the education and skills needed to modify their behavior through three health behavior workshops, in cooperation with family caregivers and community health volunteers. These methods may have empowered the participants to have more confidence in their abilities to deal with their HTN as well as prompt clinicians to prepare proactive, individualized plans to manage participants not meeting BP goals. This study provided support for developing interventions to prepare proactive teams to promote successful self management. Consistent with the findings of others on BP control (Carter et al., 2009), such teams foster communication between clinicians and well-informed patients (Siminerio et al., 2006).

This study monitored BP levels monthly and shared clinical information to provide decision-support among team members to improve the process of care and

achieve clinical markers of quality care. Similarly, a trial that offered shared access by the primary care provider and the patient to a Web-based, color-coded diabetes tracker among adult primary care patients with type II diabetes led to significantly greater declines in BP (Holbrook et al., 2009). These findings suggest that some level of patient partnership in their clinical care is an important element in achieving BP control.

In theory this kind of educational model intervention has been considered to be less effective in older person from low socioeconomic levels (Barlow, Wright, Sheasby, Turner, and Hainsworth, 2004). However, the results from this study with poor Thai hypertensive older persons with low level of education proved effective. This may have been due to the lack of applicability of the findings by Barlow et al. (2004) to the Thai community. We selected strategies regarding each objective, and targeted only a few self-management goals based on the values and priorities of this population. Our goal was to make learning easier (Figar et al., 2006; Kinzie, 2005) and adherence more likely. As results from examination of hypertensive knowledge test showed 76% of participants in the experimental group were high score of the test (80%) with mean score of 10.64, 8.44 and 8.38 point for three tests of HTN knowledge test (Appendix M), indicating they had adequate knowledge and were aware of healthy behaviors. The analysis from self-reported self management diaries indicated most had regularly performed medication use (94%), exercise (100%) and DASH diet consumption everyday (60%). The intensive intervention involved a number of strategies. Weekly group (typically comprised of between 6 and 12 participants) each furnished with written materials. Monthly individual contacts by home-visit focused on individualized plans with monthly reminders. The

combination of attention, written and oral communication and face of face visits, may have not only provided education information to change behavior but highlighted the level of importance the participant was to the health care team.

Our success in reducing the BP is in contrast to other studies. These differences could be due to the methods we employed. For example, in a study in which education was done by mail (Hunt, Siemienczuk, Touchette, and Payne, 2004) no significant difference for mean BP between the experimental and the control groups were seen over 3 months. Likewise, a telephone intervention has also not been shown to reduce BP. In a 6 month study of elderly after stroke from a transient ischemic attack, there was no significant difference in SBP between groups (Adie and Jame, 2010). Both of these studies demonstrated that a single intervention may be insufficient to improve BP control. Elderly hypertensive patient likely need more specialized support to enhance medication adherence as well as lifestyle change. Holistic programs, with mutually planned activities between participants and the caregiver, using a variety of techniques have been associated with a large net reduction in BP (Schroeder, Fahey and Ebrahim, 2004).

As the results showed, BP readings increased substantially in the first three months and remained improved, but to a lesser amount in the last three months of the program. These findings confirm that a proactive care team with non-pharmacological treatment can improve BP control among older hypertensive persons. However, the factors which cause poor control BP relapse should be prevent, furthermore, strategies to maintain BP goal achievement should be studied.

2. Older hypertensive patients in the experimental group would be significant difference in mean SBP and mean DBP, across the three time periods from baseline, to the third month and the sixth month after the interventions and significantly lower mean differences of SBP and DBP at all time periods than those in the control group.

This study showed that the institution of a MPN program among hypertensive older persons dwelling in the community decreased the BP of participants in the experimental group. This study provides evidence that a nursing strategy, facilitated changes in hypertension. These finding are consistent with those of Chodosh et al. (2005), who reported that self-management interventions which lasted for 2-6 months led to statistically and clinically significant decreases in SBP by 5 mm Hg and decrease in DBP by 4 mm Hg in an elderly population. The present study also decreased each by 8 mm Hg and 1 mm Hg, respectively (Table 9 and 11).

Moreover, The MPN program was design to transform the routine care for hypertensive older patients from reactive to proactive, planned, and population-based. It is designed to accomplish these goals through a combination of effective team care and planned interactions; self-management support bolstered by more effective use of community resources; integrated decision support; and patient registries and other supportive information technology. These elements are designed to work together to strengthen the provider-patient relationship and improve health outcomes (Coleman et al., 2009). Pearson et al. (2005) reported that for patients to engage in proactive care (delivery system design), practices needed to be able to view all of the patients in their

panels (clinical information systems) who needed certain guideline-based treatments (decision support), and patients must agree to any changes in their care and integrate them into their lives (self management support). As such, CCM-based interventions focus on practice redesign across most or all of the six elements.

This program included shared responsibility for care among each proactive team member to enable blood pressure control. Family caregivers have also been well recognized as a valid resource in maintenance for older person in the community. Thus the nurse researcher conducted interactive group educational sessions with family caregivers to improve caregiver knowledge and abilities and increase occurrence of preventive health behaviors (i.e., eating regularly, not drinking, not smoking, engaging in physical activity, and sleeping) (Burton, et al., 1997).General responsibilities of caregivers included confirming medicine usage on a regular basis and observing abnormal conditions (Wilkinson, et al., 2004). More importantly, increased availability of home health services and increasing the caregiving competence of family caregivers will provide additional support for these patients in attaining treatment goals. Studies have shown that caregivers can be helped by a variety of interventions including information and case assistance, education for self-care and skills training, and access to other community services (Toseland and Smith, 2002). Since family caregivers are assuming the same responsibilities as health professionals, their training should include the core elements of health professional training: information about the illness and about caregiving (Houts, et al., 1996).

The goal of this study was to sustain older hypertensive persons with in their community and to keep their level of functioning at the highest level of independence as possible. Therefore community health volunteers were used as an extension of health professional team members to provide care for the participant as crucial to the long-term maintenance of the patients. A previous quasi experimental study evaluated peer support and motivation from community health volunteers for older adults with diabetes. These services were delivered through a program partnership between a neighborhood senior center, a social services provider, two community clinics, and a university research center (Batik et al., 2008). Peer mentors were recruited through the senior center, conducted the work at the center, and were trained by a study consultant and a program coordinator employed by the social services provider. Over 6 months, the percentage of physically active participants increased from 21% to 43%.

3. Older hypertensive patients in the experimental group would report higher mean satisfaction with care than those in the control group at the third month after interventions

The results from this study indicated that patients participating in the program increased their satisfaction with nursing care compared to the control group (Table 12). Satisfaction is a major indicator of quality care (O'Connell, Young and Twigg, 1999). Many factors have been shown to be positively correlated with satisfaction including continuity of care, trust, access, interactive care, and the communication skills of the provider (Alazri and Neal, 2003; Moscato et al., 2007). Regarding satisfaction with nursing care, the findings in the present study showed a greater increase in satisfaction

among the experimental group. The average score of every item in the total was higher after the intervention (Table 12). These improvements indicate that hypertensive older persons were satisfied with the intervention, the ease of access to services, and usefulness of the information concerning self-management that they received. This finding is similar to the study of Whittemore, Melkus, Sullivan, and Grey (2004) where participants in a nurse-coaching intervention reported a significantly higher degree of satisfaction than those in the control group at 3 months.

Limitation

The results are encouraging even though the findings lack international generalizability due to the setting and cultural influences in Thailand. The effects of the intervention however, in a population where most have a low level of education and many who were impoverished, should be encouraging for other countries with similar populations. Our duration of intervention was also not extremely long. While we did show a good effect after three months of intervention, the results may plateau. Our experimental group, however, continued to improve their BP control at three months. A longer duration of intervention may have improved control to even a greater degree and may have shown other benefits such as greater ability to recognized and seek help for medication side effects.

Recommendation and Implications

The findings of this study have implications for nursing practice, nursing education, and national health policy. In addition, recommendations for future research are presented.

Implications for Nursing Practice

These findings were promising in attaining BP control. The components of this program should be evaluated in other their health centers in the care of hypertensive patients. A proactive nursing program based on the CCM should be considered for use by nurses, nurse practitioners, physicians, and the community health volunteers who work at community health clinics. It is anticipated that staff and community health nurses at chronic care clinics will be key in promoting and educating service for hypertensive patients about self management. With this nursing strategy, hypertensive older persons may be able to maintain their ability to perform simple routine tasks at home with minimal support from a caregiver and community health volunteer. This model may help patients with hypertensive learn to manage their disease effectively. Hopefully, the MPN will be used to help nurses further contribute to the improved care of patients with hypertension and, ultimately, enhance patient outcomes. The program responds to the Health Care Reform Project policy which aims to provide quality services to all people equally, responding to people's needs, and encouraging people to participate in taking care of themselves.

Implications for Nursing Education

Curriculum of hypertensive management for elderly patient should be developed for training advanced nurse practitioners working at community health centers. The curriculum should encompass: the CCM to activate self management and lifestyle changes and a proactive nursing care team to manage and improve quality of care; enhance their medical knowledge about HTN related to cardiovascular risk in elderly with complication detection; self management skills and non-pharmacological therapy to lower BP level in elderly, i.e. regular physical activity, DASH diet consumption, and taking BP-lowering drugs. Finally, providing support and hands-on training for caregivers and community health volunteer is essential if elderly hypertensive patient are to remain in the residence. Furthermore, the MPN developed in this study should be a part of this curriculum.

Implications for National Health Policy

The Universal Health Care Coverage Scheme is the major vehicle health financing and health service delivery reform. To decentralize health resources to a community level, primary medical care levels need to be strengthened to provide good quality of care as well as improve the capacity of health care providers.

The results of this study show the effectiveness of the diabetes self management program at the community level. Given these findings, the national health policy should be concerned with the following points:

1. The Universal Health Care Coverage Scheme should cover activities which promote self-management of persons such as patients with HTN and other chronic

diseases as well as medical treatment. Promoting models of health care delivery which focus on patient self-management of their disease and established proactive nursing care team should be emphasized. Elderly patients with HTN should have more choices to participate in taking care of themselves with their caregiver and community health volunteer. Furthermore, participation in MPN should be recommended for all hypertensive older persons under the Universal Health Care Coverage Scheme.

2. The competency of community health nurses to conduct the MPN or program for other chronic diseases should be strengthened.

3. Hypertensive care networks and collaboration among interdisciplinary, working at community hospitals and health centers of each region should be set up for sharing of resources.

4. Materials which promote hypertensive self-management; for example, written hypertensive care material, learning materials for conducting hypertensive self management program, and BP monitor should be provided and distributed widely.

Recommendations for Future Research

1. As the results showed that the BP value increased substantially in the first three months and remained improved, but to a lesser amount in the last three months of the program, which have not intervention during this time. Therefore, it should utilize the components of this program in routine daily practice at health center to prevent BP relapse and maintain BP goal achievement among this population.

2. With a broader perspective, interventions can be designed to focus not only on BP control and PSNQ, but also other activities to improve the quality of life of hypertensive older persons and/or his/her caregiver.

3. Research about how to implement the MPN in community health centers throughout the entire health care system should be undertaken. In addition, networks and collaboration among interdisciplinary, working at community hospitals and health centers of each region should be further studied about how to share resources.

4. Further research should replicate the study in poorly controlled BP elderly patients over a longer duration of follow up with long-term program evaluation.

5. Participants from several geographical areas are needed to broaden the generalizability of this study.

Conclusion

The findings of this quasi-experimental design demonstrated that a MPN promoted lower BP readings, higher percentage of BP control, and a better satisfaction with nursing care among Thai hypertensive older persons. Furthermore, this study provides strong evidence that a community nurse and proactive team, working collaboratively with patients and caregivers, can have a major effect on BP control in patients in the community. This potential benefit is particularly important given the magnitude of the care gap for hypertensive older persons in Thailand.

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APPENDICES

Appendix A

The Personal data sheet and Hypertensive information

(แบบสอบถามข้อมูลส่วนบุคคลและ
ข้อมูลทางคลินิกเกี่ยวกับโรคความดันโลหิตสูง)

ส่วนที่ 1 แบบสอบถามข้อมูลส่วนบุคคล

ชื่อ-นามสกุลผู้ป่วย……..

ชื่อ-นามสกุลผู้ดูแลที่เข้าร่วมโครงการ……เกี่ยวข้องเป็น……..

ที่อยู่ผู้ป่วย……

เบอร์โทรศัพท์……..…สถานบริการสุขภาพ....…….

****

ส่วนที่ 1 ข้อมูลส่วนบุคคล

คำอธิบาย แบบสอบถามข้อมูลส่วนบุคคลใช้เพื่อประเมินข้อมูลพื้นฐานและภาวะสุขภาพ จำนวน 8 ข้อ

คำชี้แจง: โปรดใส่เครื่องหมาย √ ลงในช่อง ☐ ที่ตรงกับตัวท่านมากที่สุดและระบุข้อมูลในช่องว่าง

1. อายุ……ปี
2. เพศ ☐ชาย ☐หญิง
3. สถานภาพสมรส ☐คู่ ☐โสด ☐หม้าย ☐หย่า/แยกกันอยู่ ☐อื่น ๆ ……
4. ศาสนา ☐พุทธ ☐คริสต์ ☐อิสลาม ☐อื่น ๆ ……..
5. การศึกษา ☐ประถม ☐มัธยม ☐อนุปริญญา ☐ปริญญาตรี ☐อื่น ๆ …….
6. รายได้ของครอบครัวเฉลี่ยต่อเดือน……บาท
   ☐เพียงพอในการใช้จ่าย ☐ไม่เพียงพอในการใช้จ่าย
7. ผู้สูงอายุมีโรคเบาหวานหรือไม่ ☐ใช่ ☐ไม่ใช่

****

ขอขอบคุณในความร่วมมือ

ส่วนที่ 2 ข้อมูลทางคลินิกเกี่ยวกับโรคความดันโลหิตสูง

คำอธิบาย แบบบันทึกข้อมูลทางคลินิกเกี่ยวกับโรคความดันโลหิตสูงโดยผู้วิจัยหรือผู้ช่วยวิจัยสัมภาษณ์ผู้สูงอายุ หรือผู้ดูแล พร้อมทั้งทบทวนประวัติการรักษาโรคความดันโลหิตสูงของผู้สูงอายุในระยะเวลา 3 เดือนที่ผ่านมา จากแบบประเมินภาวะสุขภาพครอบครัว (Family folder)

1. ระยะเวลาที่ได้รับการวินิจฉัยด้วยโรคความดันโลหิตสูง..... ปี.....เดือน

2 ในระยะเวลา 3 เดือนที่ผ่านมา ระดับความดันโลหิตของท่าน.....มิลลิเมตรปรอท.

3. ยาที่ได้รับการรักษาล่าสุด (ระบุชื่อยา ขนาดยา เวลา และวิธีใช้ยา)

เดือนที่ 1

ยารักษาความดันโลหิตสูง

……..……

……

ยาอื่นๆ

……..……

……

เดือนที่ 2

ยารักษาความดันโลหิตสูง

……..……

……

ยาอื่นๆ

……..……

……

เดือนที่ 3

ยารักษาความดันโลหิตสูง

……..……

……

……

ยาอื่นๆ

……..……

……

Appendix B

The Chula's Activity Daily Living and

(แบบประเมินความสามารถในการทำหน้าที่)

แบบประเมินความสามารถในการทำหน้าที่

คำอธิบาย แบบประเมินความสามารถในการทำหน้าที่ใช้ประเมินความสามารถในการปฏิบัติกิจวัตรประจำวันด้วยตนเองของผู้สูงอายุ ซึ่งสามารถปฏิบัติพฤติกรรมสุขภาพได้ด้วยตนเองภายหลังได้รับคำแนะนำตามโปรแกรมการพยาบาล

คำชี้แจง ผู้ช่วยวิจัยโปรดประเมินความสามารถในการทำกิจวัตรประจำวันของผู้สูงอายุ และระบุระดับคะแนนลงในช่อง ☐ที่ตรงกับกับความสามารถของผู้สูงอายุมากที่สุด จำนวนทั้งสิ้น 10 ข้อ โปรดทำทุกข้อ

รายการประเมินความสามารถในการทำกิจวัตรประจำวัน	ค่าคะแนน
1. รับประทานอาหารเมื่อเตรียมสำรับไว้ให้เรียบร้อยต่อหน้า .....0 ไม่สามารถตักอาหารเข้าปากได้ต้องมีคนป้อนให้ .....1 ตักอาหารเองได้ แต่ต้องมีคนช่วย เช่น ช่วยให้ช้อนตักเตรียมไว้ให้ หรือตัดให้เป็นชิ้นเล็กๆไว้ล่วงหน้า .....2 ตักอาหาร และช่วยตัวเองได้เป็นปกติ	
2. ล้างหน้า,หวีผม,แปรงฟัน,โกนหนวด ในระยะ 24-48 ชั่วโมงที่ผ่านมา .....0 ต้องการความช่วยเหลือ .....1 ทำได้เอง (รวมทั้งที่ทำได้เอง ถ้าเตรียมอุปกรณ์ไว้ให้)	
. . . .	
10. การกลั้นปัสสาวะในระยะ 1 สัปดาห์ที่ผ่านมา .....0 กลั้นไม่ได้ หรือใส่สายสวนปัสสาวะแต่ไม่สามารถดูแลเองได้ .....1 กลั้นไม่ได้เป็นบางครั้ง(เป็นน้อยกว่าวันละหนึ่งครั้ง) .....2 กลั้นได้เป็นปกติ เสร็จธุระ,ถอดและใส่ผ้าได้เรียบร้อย)	
คะแนนรวม	

Appendix C

The Mini Mental Status Examimation

(Thai Version 2002)

แบบทดสอบสภาพสมองเบื้องต้นฉบับภาษาไทย

MMSE – Thai 2002

ในกรณีที่ผู้ถูกทดสอบอ่านไม่ออกเขียนไม่ได้ ไม่ต้องทำข้อ 4, 9 และ 10

	บันทึกคำตอบไว้ทุกครั้ง (ทั้งคำตอบที่ถูกและผิด)	คะแนน
1. Orientation for time (5 คะแนน) (ตอบถูกข้อละ 1 คะแนน)		
1.1 วันนี้วันที่เท่าไร	....	☐
1.2 วันนี้วันอะไร	....	☐
1.3 เดือนนี้เดือนอะไร	....	☐
1.4 ปีนี้ ปีอะไร	....	☐
1.5 ฤดูนี้ฤดูอะไร	....	☐
2. Orientation for place (5 คะแนน) (ให้เลือกทำข้อใดข้อหนึ่ง) (ตอบถูกข้อละ 1 คะแนน)		
2.1 กรณีอยู่ที่สถานพยาบาล		
2.1.1 สถานที่ตรงนี้เรียกว่า อะไร และ....ชื่อว่าอะไร	....	☐
2.1.2 ขณะนี้อยู่ที่ชั้นที่เท่าไรของตัวอาคาร	....	☐
2.1.3 ที่นี่อยู่ในอำเภอ-เขตอะไร	....	☐
2.1.4 ที่นี่จังหวัดอะไร	....	☐
2.1.5 ที่นี่ภาคอะไร	....	☐
2.2 กรณีอยู่ที่บ้านของผู้ถูกทดสอบ		
2.2.1 สถานที่ตรงนี้เรียกว่าอะไร และบ้านเลขที่เท่าไร	....	☐
2.2.2 ที่นี่หมู่บ้าน หรือละแวก/คุ้ม/ย่าน/ถนนอะไร	....	☐
2.2.3 ที่นี่อยู่ในอำเภอ/ เขตอะไร	....	☐
2.2.4 ที่นี่จังหวัดอะไร	....	☐
2.2.5 ที่นี่ภาคอะไร	....	☐

คะแนน

3. Registration (3 คะแนน)

ต่อไปนี้เป็นการทดสอบความจำ ผม(ดิฉัน) จะบอกชื่อของ 3 อย่าง คุณ(ตา,ยาย...) ตั้งใจฟังให้ดีนะ เพราะจะบอกเพียงครั้งเดียว ไม่มีการบอกซ้ำอีก เมื่อ ผม(ดิฉัน) พูดจบ ให้ คุณ(ตา,ยาย...) พูดทบทวนตามที่ได้ยิน ให้ครบทั้ง 3 ชื่อ แล้วพยายามจำไว้ให้ดี เดี๋ยวดิฉันจะถามซ้ำ

* การบอกชื่อแต่ละคำให้ห่างกันประมาณหนึ่งวินาที ต้องไม่ช้าหรือเร็วเกินไป

(ตอบถูก 1 คำได้ 1 คะแนน)

○ ดอกไม้ ○ แม่น้ำ ○ รถไฟ .... ☐

ในกรณีที่ทำแบบทดสอบซ้ำภายใน 2 เดือน ให้ใช้คำว่า

○ ต้นไม้ ○ ทะเล ○ รถยนต์ .... ☐

4. Attention/Calculation (5 คะแนน) (ให้เลือกทำข้อใดข้อหนึ่ง)

ข้อนี้เป็นการคิดเลขในใจเพื่อทดสอบสมาธิ คุณ (ตา,ยาย...) คิดเลขในใจเป็นไหม?

ถ้าตอบคิดเป็นให้ทำข้อ 4.1 ถ้าตอบคิดไม่เป็นหรือไม่ตอบให้ทำข้อ 4.2

4.1 "ข้อนี้คิดในใจเอา 100 ลบ 7 เหลือเท่าไร ?

ไปเรื่อย ๆ ได้ผลลัพธ์เท่าไรบอกมา" .... ☐

บันทึกคำตอบตัวเลขไว้ทุกครั้ง (ทั้งคำตอบที่ถูกและผิด) ทำทั้งหมด 5 ครั้ง

ถ้าลบได้ 1, 2, หรือ 3 แล้วตอบไม่ได้ ก็คิดคะแนนเท่าที่ทำได้ ไม่ต้องย้ายไปทำข้อ 4.2

4.2 "ผม (ดิฉัน) จะสะกดคำว่า <u>มะนาว</u> ให้คุณ(ตา,ยาย...) ฟัง แล้วให้คุณ (ตา,ยาย...) สะกดถอยหลัง จากพยัญชนะตัวหลังไปตัวแรก คำว่ามะนาวสะกดว่า มอม้า-สระอะ นอหนู-สระอา-วอแหวน ไหนคุณ(ตา,ยาย...) สะกดถอยหลังให้ฟังซิ" .... ☐

ว า น ะ ม

5. Recall (3 คะแนน)

"เมื่อสักครู่ที่ให้จำของ 3 อย่าง จำได้ไหมมีอะไรบ้าง" (ตอบถูก 1 คำได้ 1 คะแนน)

○ ดอกไม้ ○ แม่น้ำ ○ รถไฟ .... ☐

ในกรณีที่ทำแบบทดสอบซ้ำภายใน 2 เดือน ให้ใช้คำว่า

○ ต้นไม้ ○ ทะเล ○ รถยนต์ .... ☐

จัดทำโดย คณะกรรมการจัดทำแบบทดสอบสภาพสมองเบื้องต้นฉบับภาษาไทย พ.ศ.2542 ขอเอกสาร และรายละเอียดเพิ่มเติมที่ สถาบันเวชศาสตร์ผู้สูงอายุ โทร. 0-2591-8277

6. Naming (2 คะแนน)

6.1 ชี้นาฬิกาข้อมือให้ผู้ถูกทดสอบดูแล้วถามว่า "ของสิ่งนี้เรียกว่าอะไร" .... ☐

6.2 ชี้ดินสอให้ผู้ถูกทดสอบดูแล้วถามว่า "ของสิ่งนี้เรียกว่าอะไร" .... ☐

7. Repetition (1 คะแนน)

(พูดตามได้ถูกต้องได้ 1 คะแนน)

"ตั้งใจฟังผม (ดิฉัน) นะ เมื่อผม (ดิฉัน) พูดข้อความนี้ แล้วให้คุณ (ตา,ยาย...) พูดตาม ผม (ดิฉัน) จะบอกเพียงครั้งเดียว"

"ใครใคร่ขายไก่ไข่" .... ☐

8. Verbal command (3 คะแนน)

"ฟังดี ๆ นะเดี๋ยวผม (ดิฉัน) จะส่งกระดาษให้ แล้วให้คุณ (ตา,ยาย...) รับด้วยมือขวา พับครึ่ง แล้ววางไว้ที่..........(พื้น, โต๊ะ, เตียง)"

ผู้ทดสอบแสดงกระดาษเปล่าขนาดประมาณ A4

ไม่มีรอยพับ ให้ผู้ถูกทดสอบ

○ รับด้วยมือขวา ○ พับครึ่ง ○ วางไว้ที่ (พื้น, โต๊ะ, เตียง) .... ☐

9. Written command (1 คะแนน)

ต่อไปนี้เป็นคำสั่งที่เขียนเป็นตัวหนังสือ ต้องการให้คุณ (ตา,ยาย...) อ่านแล้วทำตาม คุณ (ตา,ยาย...) จะอ่านออกเสียงหรืออ่านในใจก็ได้

ผู้ทดสอบแสดงกระดาษที่เขียนว่า "หลับตา" ○ หลับตาได้ .... ☐

10. Writing (1 คะแนน)

ข้อนี้เป็นคำสั่ง "ให้คุณ (ตา,ยาย...) เขียนข้อความอะไรก็ได้ที่อ่านแล้วรู้เรื่อง หรือมีความหมายมา 1 ประโยค"

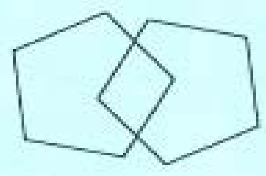
....

○ ประโยคมีความหมาย ☐

11. Visuoconstruction (1 คะแนน) คะแนน ☐

ข้อนี้เป็นคำสั่ง "จงวาดภาพให้เหมือนภาพตัวอย่าง"

(ในที่ว่างด้านล่างของภาพตัวอย่าง)



คะแนนรวม....................

ชื่อผู้ถูกประเมิน (นาย,นาง,นางสาว)....................นามสกุล....................อายุ.......ปี

ลงชื่อผู้ทำการทดสอบ....................วันที่.......เดือน....................พ.ศ.......

จุดตัด (cut-off point) สำหรับคะแนนที่สงสัยภาวะสมองเสื่อม (cognitive impairment)

ระดับการศึกษา	คะแนน	
	จุดตัด	เต็ม
ผู้สูงอายุปกติไม่ได้เรียนหนังสือ (อ่านไม่ออก-เขียนไม่ได้)	≤ 14	23 (ไม่ต้องทำข้อ 4,9,10)
ผู้สูงอายุปกติเรียนระดับประถมศึกษา	≤ 17	30
ผู้สูงอายุปกติเรียนระดับสูงกว่าประถมศึกษา	≤ 22	30

หลับตา

Appendix D

Health assessment and blood pressure control

(แบบประเมินภาวะสุขภาพ และการควบคุมความดันโลหิต)

เดือนที่	0 ก่อนเข้าโปรแกรม	1	2	3	4	5	6
น้ำหนัก (กก.)							
ส่วนสูง (ซม.)							
ดัชนีมวลกาย (กก./ม.^{2})							
รอบเอว (ซม.)							
รอบสะโพก (ซม.)							
สัดส่วนรอบเอวต่อรอบสะโพก (waist hip ratio)							
ชีพจรขณะพัก (ครั้ง/นาที)							
ระดับความดันโลหิตตัวบน (ซีสโตลิค)							
ระดับความดันโลหิตตัวล่าง (ไดแอสโตลิค)							
ผลการควบคุมความดันโลหิต	O คุมได้ O คุมไม่ได้	O คุมได้ O คุมไม่ได้	O คุมได้ O คุมไม่ได้	O คุมได้ O คุมไม่ได้	O คุมได้ O คุมไม่ได้	O คุมได้ O คุมไม่ได้	O คุมได้ O คุมไม่ได้

Appendix E

Patient Satisfaction with Nursing Care Questionnaire

(แบบสอบถามความพึงพอใจของผู้ป่วย/ผู้ใช้บริการ
ต่อบริการการพยาบาลที่ได้รับ)

แบบสอบถามฉบับนี้ต้องการทราบความรู้สึกนึกคิดของท่านที่มีต่อบริการการพยาบาลที่ท่านได้รับ กรุณาตอบตามความรู้สึกที่แท้จริงของท่านไม่มีคำตอบใดผิดหรือถูก คำตอบของท่านจะเป็นประโยชน์อย่างยิ่งในการปรับปรุงคุณภาพบริการการดูแลสุขภาพของผู้ป่วยต่อไป โปรดอ่านข้อความทีละข้อ และกรุณาตอบตาม **<u>ความคิดเห็นของท่าน</u> (โดยวงกลม O รอบตัวเลข เพียงข้อเดียวเท่านั้น)** ดังนี้

ข้อคำถาม	เห็นด้วยมากที่สุด	เห็นด้วยมาก	เห็นด้วยปานกลาง	เห็นด้วยน้อย	ไม่เห็นด้วย
1. ฉันได้รับการดูแลจากพยาบาลด้วยความห่วงใยเสมือนหนึ่งเป็นญาติมิตร	5	4	3	2	1
2. ฉันได้รับคำอธิบายเกี่ยวกับการรักษาพยาบาลอย่างชัดเจน	5	4	3	2	1
3. พยาบาลเข้าใจในปัญหาของฉันที่มีอยู่	5	4	3	2	1
4. พยาบาลให้ความช่วยเหลือทันทีเมื่อฉันต้องการ	5	4	3	2	1
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
11. พยาบาลช่วยแก้ปัญหาของฉันได้	5	4	3	2	1
12. ฉันเข้ารับบริการจากพยาบาลได้ง่ายและสะดวก	5	4	3	2	1
13. ฉันมั่นใจว่าฉันได้รับบริการที่ดีจากพยาบาล	5	4	3	2	1
14. ฉันได้รับบริการจากพยาบาลที่มีความรู้และความเชี่ยวชาญ	5	4	3	2	1
15. ถ้าเลือกได้ฉันต้องการการบริการเหมือนที่ได้รับอยู่ขณะนี้	5	4	3	2	1

Appendix F

The Multicomponent Proactive Nursing Program for Caring Hypertensive Older Person in Community: A Nurse Manual

(คู่มือพยาบาล: โปรแกรมการปฏิบัติการพยาบาลเชิงรุก เพื่อการดูแลผู้สูงอายุโรคความดันโลหิตสูง)

(ตัวอย่าง)

คู่มือพยาบาล

โปรแกรมการปฏิบัติการพยาบาลเชิงรุก
เพื่อการดูแลผู้สูงอายุโรคความดันโลหิตสูงในชุมชน

Nurse's Manual
Nursing Proactive intervention for
Caring of Hypertensive Older Persons in Community

โดย

นางสาวเรวดี เพชรศิราสัณห์

นิสิต หลักสูตรพยาบาลศาสตรดุษฎีบัณฑิต

คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

อาจารย์ที่ปรึกษาหลัก : ศาสตราจารย์ ดร. วีณา จีระแพทย์

อาจารย์ที่ปรึกษาร่วม : ผู้ช่วยศาสตราจารย์ ร.อ. หญิง ดร.ศิริพันธุ์ สาสัตย์

นักวิจัยที่ปรึกษา : ผู้ช่วยศาสตราจารย์ นพ. รุ่งนิรันดร์ ประดิษฐสุวรรณ

คู่มือนี้เป็นส่วนหนึ่งของวิทยานิพนธ์ปริญญาพยาบาลศาสตรดุษฎีบัณฑิต

สาขาพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

คู่มือพยาบาล
การปฏิบัติการพยาบาลเชิงรุกเพื่อดูแลผู้สูงอายุโรคความดันโลหิตสูงในชุมชน

หลักการและเหตุผล

ความดันโลหิตสูงมีความสัมพันธ์กับอายุที่มากขึ้น โดยพบว่าผู้มีความดันโลหิตระดับปกติที่อายุ 55 ปี มีโอกาสเกิดความดันโลหิตสูงร้อยละ 90 ในกลุ่มผู้มีอายุมากกว่า 50 ปี (Vasan et al., 2002 cited in Chobanian et al., 2003) การเปลี่ยนแปลงทางด้านสรีรวิทยาของผู้สูงอายุพบว่าเมื่ออายุมากขึ้นอวัยวะต่างๆภายในร่างกายเสื่อมสภาพลง ร่วมกับการมีภาวะความดันโลหิตสูงเป็นเวลานาน จากการไม่สามารถควบคุมความดันโลหิตให้อยู่ในระดับปกติได้ จึงเกิดผลกระทบต่อร่างกาย จิตใจ เศรษฐกิจ และสังคม เพราะโรคความดันโลหิตสูงไม่แสดงอาการทันทีในระยะแรกที่ระดับความดันโลหิตสูงขึ้น จึงทำให้ผู้ป่วยไม่ได้ตระหนักถึงอันตรายที่จะเกิดขึ้นกับตนเอง และยังคงปฏิบัติพฤติกรรมสุขภาพไม่เหมาะสม เช่น การรับประทานอาหารรสหวานหรือเค็มจัด รับประทานผักหรือผลไม้น้อยลง ไม่ควบคุมน้ำหนัก ไม่ออกกำลังกาย และรับประทานยาลดความดันโลหิตไม่ต่อเนื่อง อันเป็นสาเหตุที่ทำให้เกิดโรคแทรกซ้อนที่รุนแรง ส่งผลให้สูญเสียชีวิตหรือเกิดภาวะทุพพลภาพตามมา

ดังนั้นผู้สูงอายุโรคความดันโลหิตสูง จึงมีความจำเป็นที่จะต้องพึ่งบริการทางการแพทย์และสาธารณสุข เพื่อบำบัดรักษา ส่งเสริมสุขภาพและป้องกันภาวะแทรกซ้อนไม่ให้เกิดขึ้น รวมทั้งการฟื้นฟูสภาพในผู้ที่มีภาวะแทรกซ้อนเกิดขึ้นแล้ว การได้รับการบริการด้านสุขภาพอย่างมีคุณภาพและสามารถตอบสนองความต้องการของผู้ป่วย จะเป็นประโยชน์ต่อการลดทอนการเกิดภาวะทุพพลภาพในระยะยาวได้ ดังนั้นการส่งเสริมสุขภาพ เพื่อป้องกันหรือชะลอการเกิดภาวะทุพพลภาพจากโรคนี้ ไม่เพียงช่วยให้ผู้สูงอายุมีคุณภาพชีวิตที่ดีขึ้น หากยังสามารถลดภาระของระบบบริการสุขภาพ (สุทธิชัย จิตะพันธ์กุล และคณะ, 2544)

อย่างไรก็ตามการให้บริการสุขภาพภาครัฐเน้นการให้บริการตั้งรับมากกว่าเชิงรุก ขาดระบบการติดตามดูแลต่อเนื่อง และขาดการมีส่วนร่วมของชุมชนในการแก้ปัญหาสุขภาพของผู้รับบริการอย่างแท้จริง ดังนั้นระบบการบริการสุขภาพในระดับปฐมภูมิจำเป็นต้องมีการผสมผสานการส่งเสริมสุขภาพการป้องกันการเจ็บป่วย การรักษาพยาบาล และการฟื้นฟูสภาพ ที่เน้นการดูแลคนมากกว่าการรักษาโรคอย่างเป็นองค์รวมทั้งด้านร่างกาย จิตใจ สังคม และจิตวิญญาณ (อารี วัลยะเสรี และคณะ, 2542; ทัศนา บุญทอง, 2543) ตลอดจนการปรับเปลี่ยนระบบการให้บริการสาธารณสุข ให้มีความเหมาะสมกับกลุ่มวัยของผู้รับบริการและสอดคล้องกับปัญหาด้านสุขภาพ

(สุจิตรา เทียนสวัสดิ์ และคณะ, 2545) และเป็นบริการที่เสริมสร้างกิจกรรมให้เกิดความเข้มแข็งขึ้นในชุมชนด้วยการส่งเสริมสนับสนุนการมีส่วนร่วมของครอบครัวและชุมชนในการสร้างเสริมสุขภาพ

การค้นคว้าหลักฐานข้อมูลเชิงประจักษ์พบว่ารูปแบบการดูแลผู้ป่วยเรื้อรัง (The Chronic Care model) ของ Wagner (1998) มีแนวคิดและการปฏิบัติที่จะนำมาผสมผสานเพื่อดูแลผู้รับบริการ โดยทีมสุขภาพที่ให้บริการสุขภาพเชิงรุก และ กระตุ้นให้ผู้สูงอายุมีความรู้และกระตือรือร้นในการดูแลตนเอง นำไปสู่ผลลัพธ์ที่ดี (ดังแผนภูมิที่ 1) ภายใต้ระบบบริการสุขภาพและแหล่งทรัพยากรของชุมชน โปรแกรมการปฏิบัติการพยาบาลเพื่อดูแลผู้สูงอายุในชุมชนประกอบด้วย 4 องค์ประกอบหลัก ได้แก่ การสนับสนุนจัดการดูแลตนเอง (Self-management Support) การออกแบบการดูแลผู้สูงอายุที่เป็นโรคความดันโลหิตสูง (Delivery System Design) ระบบการตัดสินใจหรือแนวทางการดูแล (Decision Support) และระบบข้อมูลเทคโนโลยีสารสนเทศ (Clinical Information Systems)

ดังนั้นคู่มือพยาบาลฉบับนี้จึงเป็นแนวทางสำหรับพยาบาลในการทำงานเป็นทีมร่วมกับผู้ดูแล และอาสาสมัครสาธารณสุขเพื่อสนับสนุนให้ผู้สูงอายุโรคความดันโลหิตสูง สามารถจัดการตนเองในการรับประทานยาลดความดันโลหิตต่อเนื่อง ออกกำลังกายสม่ำเสมอ และเลือกรับประทานอาหารต้านความดันโลหิตสูงอย่างถูกต้องและเหมาะสม เพื่อควบคุมความดันโลหิตลดอัตราการเกิดโรคภาวะแทรกซ้อน และลดภาวะทุพพลภาพในระยะยาว โดยคาดว่าจะก่อให้เกิดประโยชน์สูงสุดต่อผู้รับบริการ ผู้ให้บริการ และหน่วยงาน ซึ่งเป็นเป้าหมายสูงสุดของการพัฒนาระบบบริการสุขภาพที่มีคุณภาพและผู้รับบริการมีความพึงพอใจ รวมทั้งเป็นการให้บริการสุขภาพชุมชนแบบเชิงรุกและสอดคล้องกับนโยบายบริการสุขภาพระดับปฐมภูมิ ใกล้บ้าน ใกล้ใจที่ยั่งยืนต่อไปในอนาคต

วัตถุประสงค์

1. เพื่อให้พยาบาลเข้าใจและปฏิบัติการพยาบาลเพื่อควบคุมความดันโลหิตในผู้สูงอายุโรคความดันโลหิตสูงในชุมชนภายใต้รูปแบบการดูแลผู้ป่วยโรคเรื้อรังได้อย่างมีประสิทธิภาพ
2. เพื่อเป็นแนวทางส่งเสริมการประสานความร่วมมือการทำงานเป็นทีมระหว่างพยาบาลผู้ดูแล และอาสาสมัครสาธารณสุขในการดูแลผู้สูงอายุโรคความดันโลหิตสูง
3. เพื่อเป็นแนวทางพัฒนาคุณภาพการดูแลสุขภาพผู้สูงอายุโรคความดันโลหิตสูงที่สอดคล้องกับความต้องการด้านสุขภาพ และเพิ่มความพึงพอใจภายหลังจากได้รับบริการการพยาบาลของผู้สูงอายุโรคความดันโลหิตสูงในชุมชน

กลุ่มเป้าหมาย

1. ผู้สูงอายุโรคความดันโลหิตสูง
2. ผู้ดูแลผู้สูงอายุ
3. อาสาสมัครสาธารณสุข

ประโยชน์ที่คาดว่าจะได้รับ

1. ผู้สูงอายุโรคความดันโลหิตสูง ผู้ดูแล และอาสาสมัครสาธารณสุข มีความรู้ความเข้าใจและทักษะการปฏิบัติการจัดการตนเองเพื่อควบคุมความดันโลหิตที่มีประสิทธิภาพ

2. ผู้สูงอายุสามารถควบคุมความดันโลหิตได้ภายหลังได้รับบริการการพยาบาล

3. ผู้สูงอายุมีความพึงพอใจในการบริการสุขภาพต่อการบริการพยาบาลภายหลังได้รับบริการการพยาบาล

4. พยาบาลและบุคลากรทีมสุขภาพมีความรู้ มีทักษะในการทำงานเป็นทีมเพื่อดูแลผู้สูงอายุโรคความดันโลหิตสูงในชุมชน

5. ระบบบริการสุขภาพสำหรับผู้สูงอายุโรคความดันโลหิตสูงได้รับการพัฒนาและมีประสิทธิภาพ

แนวปฏิบัติการพยาบาลเชิงรุกเพื่อดูแลผู้สูงอายุโรคความดันโลหิตสูงในชุมชน

การดำเนินกิจกรรมการพยาบาลเชิงรุกเพื่อดูแลผู้สูงอายุโรคความดันโลหิตสูงในชุมชนภายใต้รูปแบบการดูแลโรคเรื้อรัง (ดังแผนภาพที่ 1) ซึ่งมีระยะเวลาดำเนินการติดต่อกัน 3 เดือน โดยมีแนวคิดและแนวปฏิบัติ ดังนี้

การสนับสนุนการจัดการตนเอง (self-management support) ประกอบด้วย 3 กิจกรรม ดังนี้

1. พยาบาลให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่ม (interactive group education)

<u>วัตถุประสงค์</u> เพื่อให้ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข

1. สามารถประเมินปัญหา และสาเหตุของการควบคุมความดันโลหิตไม่ได้ การรับประทานยาลดความดันโลหิตไม่ต่อเนื่อง การไม่ออกกำลังกาย และเลือกรับประทานอาหารไม่เหมาะสมกับโรคความดันโลหิตสูง

2. มีความรู้เรื่องโรคความดันโลหิตสูง และทักษะในการปฏิบัติพฤติกรรมการจัดการตนเองเพื่อควบคุมความดันโลหิตได้ถูกต้องและเหมาะสม

3. สามารถตั้งเป้าหมายและวางแผนการปฏิบัติพฤติกรรมการจัดการตนเองเพื่อควบคุมความดันโลหิต ได้แก่ รับประทานยาลดความโลหิต ออกกำลังกาย และรับประทานอาหารที่เหมาะสม ได้

4. สามารถปฏิบัติพฤติกรรมการจัดการตนเองเพื่อควบคุมความดันโลหิต ได้แก่ รับประทานยาลดความโลหิต ออกกำลังกาย และรับประทานอาหารต้านความดันโลหิตสูงที่ถูกต้องและเหมาะสม ได้

<u>ระยะเวลาดำเนินการ</u> จัดกิจกรรม 3 ครั้ง ในสัปดาห์ที่ 1 ของแต่ละเดือน โดยใช้เวลาครั้งละ 90 นาที

<u>กิจกรรมการให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่ม ครั้งที่ 1</u>

1. พยาบาลชี้แจงรายละเอียดและวัตถุประสงค์การดำเนินกิจกรรมแก่ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข

2. พยาบาลจัดกิจกรรมกลุ่มสัมพันธ์เพื่อกระตุ้นการมีส่วนร่วมในการเรียนรู้และแลกเปลี่ยนความคิดเห็นระหว่าง ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข

3. พยาบาลจัดกิจกรรมการสนับสนุนการจัดการตนเองเกี่ยวกับการรับประทานยาลดความดันโลหิต และสาธิตการบันทึกพฤติกรรมการจัดการตนเอง ดังนี้

3.1 ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข ร่วมประเมินปัญหาและสาเหตุของการควบคุมความดันโลหิตไม่ได้และการรับประทานยาลดความดันโลหิตไม่ต่อเนื่อง บันทึกปัญหาที่ต้องการแก้ไข ลงในแบบบันทึกพฤติกรรมการจัดการตนเองเกี่ยวกับการรับประทานยา

3.2 ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข ร่วมตั้งเป้าหมายพฤติกรรมการจัดการตนเองเกี่ยวกับการรับประทานยาลดความดันโลหิต ลงในแบบบันทึกพฤติกรรมการจัดการตนเองเกี่ยวกับการรับประทานยา

3.3 พยาบาลให้ความรู้ เรื่อง “รู้ทันโรค...ใช้ยาต่อเนื่อง...ควบคุมความดันได้”

3.4 ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข ร่วมวางแผนการปฏิบัติพฤติกรรมการจัดการตนเองเกี่ยวกับการรับประทานยาลดความดันโลหิต ลงในแบบบันทึกพฤติกรรมการจัดการตนเองเกี่ยวกับการรับประทานยา

4. พยาบาลสาธิตการจัดเตรียมยาลดความดันโลหิตและให้ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข ฝึกปฏิบัติทักษะการจัดเตรียมยาลดความดันโลหิตสำหรับผู้สูงอายุ

5. พยาบาลสาธิตการบันทึกพฤติกรรมการรับประทานยาลดความดันโลหิตสำหรับผู้สูงอายุอย่างต่อเนื่อง

6. พยาบาลประเมินความรู้เกี่ยวกับการรับประทานยาลดความดันโลหิตโดยใช้แบบประเมินความรู้ เรื่อง “รู้ทันโรค...ใช้ยาต่อเนื่อง...ควบคุมความดันได้” เป็นแบบเลือกตอบ “ใช่” และ “ไม่ใช่”จำนวน 10 ข้อ ใช้เวลา 15 นาที

<u>กิจกรรมการให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่ม ครั้งที่ 2</u>

1. พยาบาลตรวจวัดระดับความดันโลหิตของผู้สูงอายุ และแจ้งผลระดับความดันโลหิตให้ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุขทราบ

2. พยาบาลชี้แจงรายละเอียดและวัตถุประสงค์การดำเนินกิจกรรมแก่ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข

3. พยาบาลจัดกิจกรรมกลุ่มสัมพันธ์เพื่อกระตุ้นการมีส่วนร่วมในการเรียนรู้และแลกเปลี่ยนความคิดเห็นระหว่าง ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข

4. พยาบาลจัดกิจกรรมส่งเสริมการสนับสนุนการจัดการตนเองเกี่ยวกับการออกกำลังกาย และสาธิตการบันทึกพฤติกรรมการจัดการตนเอง ดังนี้

4.1 ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข ร่วมประเมินปัญหาและสาเหตุของการไม่ออกกำลังกายหรือการออกกำลังกายไม่ต่อเนื่อง พร้อมทั้งบันทึกปัญหาที่ต้องการจะแก้ไข ลงในแบบบันทึกพฤติกรรมการจัดการตนเองเกี่ยวกับการรับประทานยา

4.2 ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข ร่วมตั้งเป้าหมายพฤติกรรมการจัดการตนเองเกี่ยวกับการออกกำลังกาย ลงในแบบบันทึกพฤติกรรมการจัดการตนเองเกี่ยวกับการออกกำลังกาย

4.3 พยาบาลให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่มครั้งที่ 2 เรื่อง “การออกกำลังกาย...ลดความดัน”

4.4 ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข ร่วมวางแผนการปฏิบัติพฤติกรรมการจัดการตนเองเกี่ยวกับการออกกำลังกาย ลงในแบบบันทึกพฤติกรรมการจัดการตนเองเกี่ยวกับการออกกำลังกาย

5. พยาบาลสาธิตการรำไม้พลองป้าบุญมี 12 ท่า และผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุขฝึกปฏิบัติการรำไม้พลองป้าบุญมี

6. พยาบาลสาธิตการบันทึกพฤติกรรมการออกกำลังกายสำหรับผู้สูงอายุอย่างต่อเนื่อง

7. พยาบาลประเมินความรู้เกี่ยวกับการรับประทานยาลดความดันโลหิตโดยใช้แบบประเมินความรู้ เรื่อง “การออกกำลังกาย...ลดความดัน” เป็นแบบเลือกตอบ “ใช่” และ “ไม่ใช่” จำนวน 10 ข้อ ใช้เวลา 15 นาที

<u>กิจกรรมการให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่ม ครั้งที่ 3</u>

1. พยาบาลตรวจวัดระดับความดันโลหิตของผู้สูงอายุ และแจ้งผลระดับความดันโลหิตให้ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุขทราบ

2. พยาบาลชี้แจงรายละเอียดและวัตถุประสงค์การดำเนินกิจกรรมแก่ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข

3. พยาบาลจัดกิจกรรมกลุ่มสัมพันธ์เพื่อกระตุ้นการมีส่วนร่วมในการเรียนรู้และแลกเปลี่ยนความคิดเห็นระหว่าง ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข

4. พยาบาลจัดกิจกรรมส่งเสริมการสนับสนุนการจัดการตนเองเกี่ยวกับการออกกำลังกาย และสาธิตการบันทึกพฤติกรรมการจัดการตนเอง ดังนี้

4.1 ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข ร่วมประเมินปัญหาและสาเหตุของการเลือกรับประทานอาหารไม่เหมาะสมกับโรคความดันโลหิตสูง พร้อมทั้งบันทึกปัญหาที่ต้องการจะแก้ไข ลงในแบบบันทึกพฤติกรรมการจัดการตนเองเกี่ยวกับการรับประทานอาหาร

4.2 ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข ร่วมตั้งเป้าหมายพฤติกรรมการจัดการตนเองเกี่ยวกับการรับประทานอาหาร ลงในแบบบันทึกพฤติกรรมการจัดการตนเองเกี่ยวกับการรับประทานอาหาร

4.3 พยาบาลให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่มครั้งที่ 2 เรื่อง “กินอย่างไร ...ลดความดันโลหิต”

4.4 ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข ร่วมวางแผนการปฏิบัติพฤติกรรมการจัดการตนเองเกี่ยวกับการรับประทานอาหาร ลงในแบบบันทึกพฤติกรรมการจัดการตนเองเกี่ยวกับการรับประทานอาหาร

5. พยาบาลจัดกิจกรรม ฝึกปฏิบัติการเลือกและออกแบบเมนูอาหารสุขภาพลดความดัน โดยใช้โมเดลอาหารให้ผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข

6. พยาบาลสาธิตการบันทึกพฤติกรรมการรับประทานอาหารสำหรับผู้สูงอายุอย่างต่อเนื่อง

7. พยาบาลประเมินความรู้เกี่ยวกับการรับประทานยาลดความดันโลหิตโดยใช้แบบประเมินความรู้ เรื่อง “กินอย่างไร...ลดความดัน” เป็นแบบเลือกตอบ “ใช่” และ “ไม่ใช่”จำนวน 10 ข้อ ใช้เวลา 15 นาที

2. กิจกรรมการเสริมสร้างศักยภาพการดูแลผู้สูงอายุของผู้ดูแล (promoting caregiver ability)

วัตถุประสงค์ เพื่อให้ผู้ดูแลมีความรู้ ทักษะ และประสบการณ์ในการสนับสนุนการจัดการตนเองของผู้สูงอายุโรคความดันโลหิตสูงเพื่อควบคุมความดันโลหิต

กิจกรรมการเสริมสร้างศักยภาพของผู้ดูแล

1. พยาบาลจัดให้ผู้ดูแลเข้าร่วมกิจกรรมการให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่มร่วมกับผู้สูงอายุและอาสาสมัครสาธารณสุข จำนวน 3 ครั้ง ในสัปดาห์ที่ 1 ของแต่ละเดือน โดยใช้เวลาครั้งละ 90 นาที

2. พยาบาลชี้แจงและอธิบายบทบาทของผู้ดูแลในการสนับสนุนจัดการตนเองของผู้สูงอายุ ให้แก่ผู้ดูแล เมื่อเยี่ยมบ้านผู้สูงอายุ ดังนี้

2.1 ผู้ดูแลหมั่นทบทวนความรู้เกี่ยวกับวิธีการจัดการตนเองเพื่อควบคุมความดันโลหิตสำหรับผู้สูงอายุ ตามเอกสารคู่มือการจัดการตนเองสำหรับผู้สูงอายุโรคความดันโลหิตสูงอย่างสม่ำเสมอ

2.2 ผู้ดูแลกระตุ้นเตือนและให้กำลังใจผู้สูงอายุในการปฏิบัติพฤติกรรมการรับประทานยา และการออกกำลังกาย รวมทั้งเตรียมอาหารต้านความดันโลหิตสูงที่เหมาะสมสำหรับผู้สูงอายุ

2.3 ผู้ดูแลบันทึกพฤติกรรมการรับประทานยาการออกกำลังกาย และการรับประทานอาหารในคู่มือการจัดการตนเองสำหรับผู้สูงอายุโรคความดันโลหิตสูง

2.4 ผู้ดูแลสังเกตอาการผิดปกติและปัญหาสุขภาพของผู้สูงอายุ และแจ้งแก่อาสาสมัครสาธารณสุข หรือพยาบาล เพื่อให้การช่วยเหลือดูแลได้ทันท่วงที

2.5 ผู้ดูแลให้การช่วยเหลือผู้สูงอายุในการเดินทางมาตรวจสุขภาพและรับยาต่อเนื่องตามกำหนดนัดของแพทย์

3. พยาบาลร่วมวางแผนการดูแลผู้สูงอายุเพื่อสนับสนุนการจัดการตนเองเพื่อควบคุมความดันโลหิตของผู้สูงอายุ

4. พยาบาลรับฟังปัญหาในการดูแลผู้สูงอายุของผู้ดูแลและให้กำลังใจผู้ดูแลทุกครั้งที่เยี่ยมบ้านผู้สูงอายุ

3. กิจกรรมการสร้างแรงจูงใจในการปฏิบัติการจัดการตนเองที่เหมาะสม (reinforce by using incentive reward)

วัตถุประสงค์ เพื่อให้ผู้สูงอายุที่ควบคุมความดันโลหิตได้

3.1 มีกำลังใจในการปฏิบัติการจัดการตนเองเพื่อควบคุมความดันโลหิตที่เหมาะสมอย่างต่อเนื่อง

3.2 เป็นแบบอย่างที่ดีและสร้างแรงจูงใจให้แก่ผู้สูงอายุที่ไม่สามารถควบคุมความดันโลหิตได้

ระยะเวลาดำเนินการ จัดกิจกรรม 3 ครั้ง ในสัปดาห์ที่ 4 ของแต่ละเดือน

กิจกรรมการสร้างแรงจูงใจ

1. เจ้าหน้าที่สถานีอนามัย มอบ “ดาววัลย์” (ตราสัญลักษณ์ที่แสดงถึงความสำเร็จในการปฏิบัติพฤติกรรมสุขภาพที่เหมาะสมและสามารถควบคุมความดันโลหิตได้ตามเกณฑ์) สำหรับผู้สูงอายุที่ปฏิบัติพฤติกรรมสุขภาพที่เหมาะสมและมีระดับความดันโลหิตตามเกณฑ์ (JNC VII, 2003) (systolic blood pressure < 140 mmHg และ diastolic blood pressure < 90 mmHg) เมื่อผู้สูงอายุมาตรวจสุขภาพและมารับยาต่อเนื่องตามนัด ณ สถานีอนามัย โดยเก็บเป็นคะแนนสะสมเมื่อสิ้นสุดกิจกรรม หัวหน้าสถานีอนามัยมอบรางวัลสำหรับผู้สูงอายุที่มีดาววัลย์สะสมสูงที่สุด จัดทำประกาศเกียรติคุณเพื่อสร้างแรงจูงใจในการปฏิบัติพฤติกรรมที่เหมาะสมอย่างต่อเนื่อง และควบคุมความดันโลหิตได้สำเร็จอย่างต่อเนื่อง

2. บันทึกวีดิทัศน์การปฏิบัติกิจวัตรประจำวันของผู้สูงอายุที่ประสบความสำเร็จในการควบคุมความดันโลหิต โดยคัดเลือกเฉพาะผู้สูงอายุที่ได้รับประกาศเกียรติคุณ ณ ที่พักอาศัยของผู้สูงอายุ เพื่อนำเสนอให้กับผู้สูงอายุโรคความดันโลหิตสูงในกลุ่มอื่นๆ เพื่อเสริมแรงให้ผู้สูงอายุปฏิบัติพฤติกรรมสุขภาพที่ดีอย่างต่อเนื่อง และเป็นแบบอย่างที่ดีในการปฏิบัติพฤติกรรมสุขภาพที่เป็นรูปธรรมปฏิบัติได้จริง

3. ร่วมจัดโครงการ “มหกรรมสร้างเสริมสุขภาพ...ลดความดันผู้สูงอายุ” เพื่อส่งเสริมการปฏิบัติการจัดการตนเองเกี่ยวกับ การออกกำลังกาย และการเลือกรับประทานอาหารต้านความดันโลหิตสูง และจัดประกวดเมนูอาหารต้านความดันโลหิตสูง ภายหลังเข้าร่วมกิจกรรมการเรียนรู้ “กินอย่างไร...ลดความดัน” 1 สัปดาห์ ใช้เวลา 4 ชั่วโมง

การประเมินผล

1. ความสนใจและความร่วมมือในการเข้าร่วมกิจกรรมอย่างต่อเนื่องของผู้สูงอายุ ผู้ดูแล และอาสาสมัครสาธารณสุข

2. ผลการบันทึกการจัดการตนเองเกี่ยวกับ การรับประทานยา การออกกำลังกาย และการรับประทานอาหาร ของผู้สูงอายุ ในคู่มือการจัดการตนเองสำหรับผู้สูงอายุโรคความดันโลหิตสูง

3. ผลการตรวจวัดระดับความดันโลหิต
4. จำนวนผู้สูงอายุที่สามารถควบคุมความดันโลหิตได้ในแต่ละเดือน

การออกแบบระบบบริการ (delivery system design)

1. การเยี่ยมบ้านแบบเชิงรุก (proactive home visit)

<u>วัตถุประสงค์</u>

1.1 เพื่อป้องกันปัญหาและอุปสรรคของการปฏิบัติการจัดการตนเองของผู้สูงอายุเกี่ยวกับการรับประทานยา การออกกำลังกาย และการรับประทานอาหาร

1.2 เพื่อติดตามและประเมินการปฏิบัติการจัดการตนเองเกี่ยวกับการรับประทานยา การออกกำลังกาย และการรับประทานอาหารของผู้สูงอายุอย่างต่อเนื่อง

1.3 เพื่อติดตามและเฝ้าระวังโรคแทรกซ้อนจากความดันโลหิตสูง

<u>ระยะเวลาดำเนินการ</u> กำหนดการเยี่ยมบ้าน แบ่งเป็น เยี่ยมโดยพยาบาล เดือนละครั้ง โดยมีกำหนดการเยี่ยมภายในสัปดาห์ที่ 2 หลังจากเสร็จสิ้นกิจกรรมกลุ่ม และ เยี่ยมโดยอาสาสมัครสาธารณสุข เดือนละครั้ง ติดต่อกัน 3 เดือน โดยมีกำหนดการเยี่ยมภายในสัปดาห์ที่ 3 หลังจากเสร็จสิ้นกิจกรรมกลุ่ม ระยะเวลาสำหรับเยี่ยมประมาณ 30-45 นาทีต่อครั้งต่อคน

<u>กิจกรรมการเยี่ยมบ้านโดยพยาบาล</u> ดังนี้

1. สอบถามภาวะสุขภาพ ตรวจร่างกาย และประเมินความสามารถในการปฏิบัติกิจวัตรประจำวันของผู้สูงอายุ

2. ประเมินปัญหาสุขภาพที่ส่งผลต่อระดับความดันโลหิต ได้แก่ อาการข้างเคียงของยาลดความดันโลหิต เช่น ปัสสาวะบ่อย ไอเรื้อรัง อ่อนเพลีย เป็นต้น อาการท้องผูก อาการนอนไม่หลับ อาการปวด อาการวิงเวียนศีรษะ อาการหน้ามืดเป็นลม และ ประวัติการหกล้ม

3. ตรวจสอบจำนวนยาลดความดันโลหิตและชนิดของยาที่รับประทานร่วมในปัจจุบัน ทั้งยาแผนปัจจุบันและยาสมุนไพร

4. ทบทวนองค์ความรู้จากการจัดกิจกรรมการให้ความรู้และให้ความรู้เพิ่มเติมในส่วนที่ผู้ดูแลและผู้สูงอายุยังไม่เข้าใจ

5. ประเมินปัญหาและอุปสรรคของพฤติกรรมการจัดการตนเองเพื่อควบคุมความดันโลหิต ได้แก่ การรับประทานยาลดความดันโลหิต การออกกำลังกาย และการเลือกรับประทานอาหารต้านความดันโลหิตสูง

6. ให้คำแนะนำเกี่ยวกับวิธีปฏิบัติตัวที่สอดคล้องกับปัญหาและอุปสรรคต่อการจัดการตนเองเพื่อควบคุมความดันโลหิต

7. เน้นย้ำกำหนดนัดตรวจและการร่วมกิจกรรมกลุ่มครั้งต่อไป

8. ให้ผู้สูงอายุหรือผู้ดูแลลงลายมือชื่อในการได้รับการเยี่ยมในแบบบันทึกการเยี่ยมบ้านสำหรับพยาบาล

9. จดบันทึกผลการเยี่ยมบ้านและประเด็นปัญหาที่ต้องดูแลต่อเนื่องในแบบฟอร์มแผนการเยี่ยมบ้านสำหรับพยาบาล

<u>กิจกรรมการเยี่ยมบ้านโดยอาสาสมัครสาธารณสุข</u> ดังนี้

1. ประเมินปัญหาและอุปสรรคของการปฏิบัติการจัดการตนเองเพื่อควบคุมความดันโลหิต ได้แก่ การรับประทานยาลดความดันโลหิต การออกกำลังกาย และการเลือกรับประทานอาหารต้านความดันโลหิตสูง

2. ให้คำแนะนำเกี่ยวกับวิธีปฏิบัติตัวที่สอดคล้องกับปัญหาและอุปสรรคต่อการปฏิบัติการจัดการตนเองเพื่อควบคุมความดันโลหิต

3. เน้นย้ำกำหนดนัดตรวจและการร่วมกิจกรรมกลุ่มครั้งต่อไป

4. ให้ผู้สูงอายุหรือผู้ดูแลลงลายมือชื่อในการได้รับการเยี่ยมในแบบบันทึกการเยี่ยมบ้านสำหรับอาสาสมัครสาธารณสุข

5. จดบันทึกผลการเยี่ยมบ้านและประเด็นปัญหาที่ต้องดูแลต่อเนื่องในแบบบันทึกการเยี่ยมบ้านสำหรับอาสาสมัครสาธารณสุข

2. พี่เลี้ยงสร้างสุขภาพ (health mentoring)

<u>วัตถุประสงค์</u>

1. เพื่อช่วยเหลือดูแลผู้สูงอายุในการปฏิบัติการจัดการตนเองเพื่อควบคุมความดันโลหิตได้อย่างต่อเนื่อง

2. เพื่อป้องกันปัญหาและอุปสรรคของการปฏิบัติการจัดการตนเองของผู้สูงอายุเกี่ยวกับการรับประทานยา การออกกำลังกาย และการรับประทานอาหาร

3. เพื่อติดตามและประเมินการปฏิบัติการจัดการตนเองเกี่ยวกับการรับประทานยา การออกกำลังกาย และการรับประทานอาหารของผู้สูงอายุอย่างต่อเนื่อง

กำหนดให้อาสาสมัครสาธารณสุข 1 คน ดูแลผู้สูงอายุ 10 คน ซึ่งปฏิบัติกิจกรรมการเป็นพี่เลี้ยงสร้างสุขภาพให้แก่ผู้สูงอายุใน 2 ลักษณะดังนี้

ระยะเวลาดำเนินการ

1. กำหนดการเยี่ยมบ้าน เดือนละ 1 ครั้ง ติดต่อกัน 3 เดือน โดยมีกำหนดการเยี่ยมภายในสัปดาห์ที่ 3 หลังจากเสร็จสิ้นกิจกรรมกลุ่ม ระยะเวลาสำหรับเยี่ยมประมาณ 30-45 นาทีต่อครั้งต่อคน

2. กิจกรรมออกกำลังกายรายกลุ่ม อย่างน้อย 3 วันต่อสัปดาห์ อย่างน้อย 3 วันต่อสัปดาห์ ทุกสัปดาห์ ติดต่อกัน 3 เดือน ใช้เวลาครั้งละอย่างน้อย 30 นาที

3. กิจกรรมกายภาพบำบัดสำหรับผู้สูงอายุที่ช่วยตนเองไม่ได้ อย่างน้อยสัปดาห์ละ 1 ครั้ง ติดต่อ 3 เดือน ใช้เวลาครั้งละอย่างน้อย 30 นาที

การดูแลผู้สูงอายุรายบุคคล

1. เยี่ยมบ้านผู้สูงอายุที่อยู่ในความดูแล เพื่อประเมินปัญหาและอุปสรรคในการปฏิบัติการจัดการตนเอง ร่วมค้นหาแนวทางแก้ไขกับผู้สูงอายุและผู้ดูแล รวมทั้งกระตุ้นเตือนผู้สูงอายุให้มาตรวจตามนัด (ตามรายละเอียด การเยี่ยมบ้านแบบเชิงรุก ในหัวข้อกิจกรรมการเยี่ยมบ้านสำหรับอาสาสมัครสาธารณสุข)

2. ให้คำปรึกษาทางสุขภาพในปัญหาที่ต้องการปรับเปลี่ยนพฤติกรรมสุขภาพแก่ผู้สูงอายุที่อยู่ในความดูแลและผู้ดูแล ในขณะเยี่ยมบ้านหรือทางโทรศัพท์เมื่อได้รับการติดต่อ

การดูแลผู้สูงอายุรายกลุ่ม

1. สำหรับผู้สูงอายุในรายที่ช่วยตนเองได้ จัดกิจกรรมออกกำลังกายร่วมกันของผู้สูงอายุที่อยู่ในความดูแล โดยนัดหมายวัน เวลา สถานที่ ที่สะดวกสำหรับออกกำลังกาย

2. ร่วมจัดโครงการ “มหกรรมสร้างเสริมสุขภาพ...ลดความดันผู้สูงอายุ” เพื่อส่งเสริมการปฏิบัติการจัดการตนเองเกี่ยวกับ การออกกำลังกาย และการเลือกรับประทานอาหารต้านความดันโลหิตสูง และจัดประกวดเมนูอาหารต้านความดันโลหิตสูง ภายหลังเข้าร่วมกิจกรรมการเรียนรู้ “กินอย่างไร...ลดความดัน” 1 สัปดาห์ ใช้เวลา 4 ชั่วโมง

3. ระบบกระตุ้นเตือนการมาตรวจตามนัด (follow-up reminder system for ensuring follow up appointment)

วัตถุประสงค์

1. เพื่อกระตุ้นเตือนการมาตรวจตามนัดของผู้สูงอายุและอำนวยความสะดวกให้ผู้สูงอายุมารับการตรวจอย่างต่อเนื่อง

2. เพื่อป้องกันปัญหาและอุปสรรคของการมาตรวจตามนัดของผู้สูงอายุ

การกระตุ้นเตือนมาตรวจตามนัด มีข้อปฏิบัติดังนี้

1. เจ้าหน้าที่สาธารณสุข จัดทำใบนัดตรวจครั้งต่อไปให้แก่ผู้สูงอายุในวันตรวจและแจ้งเตือนในการจัดกิจกรรมกลุ่มให้ความรู้ในแต่ละเดือน

2. เจ้าหน้าที่สาธารณสุข จัดทำรายชื่อผู้สูงอายุที่ได้รับการนัดหมายเพื่อตรวจติดตามผลการรักษา (Follow-up) ภายใน 1 สัปดาห์ก่อนวันนัด และมอบหมายให้อาสาสมัครสาธารณสุขที่รับผิดชอบได้กระตุ้นเตือนกำหนดนัดตรวจในการเยี่ยมบ้านผู้สูงอายุรายบุคคล

3. เจ้าหน้าที่สาธารณสุข อำนวยความสะดวกแก่ผู้สูงอายุที่ขอเลื่อนการนัดตรวจและจัดช่วงเวลาที่เหมาะสมทดแทน

การประเมินผล

1. ผลการบันทึกการเยี่ยมบ้านสำหรับพยาบาล และบันทึกการเยี่ยมบ้านของอาสาสมัครสาธารณสุข ในคู่มือการจัดการตนเองสำหรับผู้สูงอายุโรคความดันโลหิตสูง
2. ผลการบันทึกในแบบฟอร์มรายชื่อผู้สูงอายุโรคความดันโลหิตสูงที่นัดตรวจรายเดือน
3. จำนวนผู้สูงอายุโรคความดันโลหิตสูงที่มาตรวจตามนัดในแต่ละเดือน

การสนับสนุนการตัดสินใจ (decision support)

1. ระบบการพัฒนาและอบรมอาสาสมัครสาธารณสุข (dynamic staff training system focused on arising problem or unsolved issue)

วัตถุประสงค์ เพื่อให้อาสาสมัครสาธารณสุขมีความรู้ ทักษะ และประสบการณ์ในการดูแลผู้สูงอายุโรคความดันโลหิตสูงในชุมชน

กิจกรรมการพัฒนาและอบรมอาสาสมัครสาธารณสุข

1. พยาบาลจัดให้อาสาสมัครสาธารณสุขเข้าร่วมกิจกรรมการให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่ม ร่วมกับผู้สูงอายุและผู้ดูแล จำนวน 3 ครั้ง ในสัปดาห์ที่ 1 ของแต่ละเดือน โดยใช้เวลาครั้งละ 90 นาที

2. พยาบาลจัดกิจกรรมแลกเปลี่ยนประสบการณ์ การดูแลผู้สูงอายุในชุมชนกับอาสาสมัครดูแลผู้สูงอายุ (อผส.) และฝึกปฏิบัติการวางแผนและบันทึกการเยี่ยมบ้านใช้เวลา 90 นาที โดยจัดก่อนจัดกิจกรรมให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่ม 1 สัปดาห์

3. พยาบาลชี้แจงและอธิบายบทบาทของอาสาสมัครสาธารณสุขในการดูแลผู้สูงอายุ ดังนี้

3.1 สามารถให้ข้อมูลข่าวสารที่เป็นประโยชน์ต่อผู้สูงอายุและเป็นตัวแทนในการประสานงานร่วมมือพยาบาล และเจ้าหน้าที่สถานีอนามัย

3.2 เป็นแกนนำในการถ่ายทอดความรู้ที่เป็นประโยชน์ในด้าน การสร้างเสริมสุขภาพ และ การฟื้นฟูสุขภาพผู้สูงอายุแนะนำวิธีการทำกายภาพบำบัดให้กับผู้ดูแล

3.3 กระตุ้นเตือนและให้กำลังใจผู้สูงอายุในการปฏิบัติการจัดการตนเองเกี่ยวกับการรับประทานยา และการออกกำลังกาย และการเลือกรับประทานอาหารต้านความดันโลหิตสูง

3.4 ร่วมวางแผนการเยี่ยมบ้านแบบเชิงรุกดูแลผู้สูงอายุเพื่อสนับสนุนการจัดการตนเอง

3.5 สามารถออกไปเยี่ยมผู้สูงอายุที่บ้านได้ ให้คำแนะนำให้ความรู้ทางด้านสุขภาพทั้งกายและใจแก่ผู้สูงอายุ

3.6 กระตุ้นเตือนและให้การช่วยเหลือผู้สูงอายุในการมาตรวจสุขภาพและรับยาต่อเนื่องตามกำหนดนัดของแพทย์

3.7 ช่วยเหลือดูแลด้านสุขภาพของผู้สูงอายุเท่าที่มีความรู้และประสบการณ์อย่างถูกต้อง สังเกตอาการผิดปกติและปัญหาสุขภาพของผู้สูงอายุ และแจ้งแก่อาสาสมัครสาธารณสุข หรือพยาบาล เพื่อให้การช่วยเหลือดูแลได้ทันท่วงที

4. พยาบาลติดตามนิเทศการปฏิบัติการเยี่ยมบ้านผู้สูงอายุโรคความดันโลหิตสูงของอาสาสมัครสาธารณสุข ในครั้งที่ 1 ของการเยี่ยม และประชุมปรึกษาเกี่ยวกับปัญหาและอุปสรรคเกี่ยวกับการเยี่ยมบ้านผู้สูงอายุโรคความดันโลหิตสูง

2. การประชุมปรึกษารายกรณี (case conference)

<u>วัตถุประสงค์</u>

1. เพื่อพัฒนาแนวทางการดูแลและการเยี่ยมบ้านเฉพาะรายในผู้สูงอายุโรคความดันโลหิตสูงที่ไม่สามารถควบคุมความโลหิตได้

2. เพื่อป้องกันปัญหาและอุปสรรคในการดูแลผู้สูงอายุโรคความดันโลหิตสูงของพยาบาล อาสาสมัครสาธารณสุข และเจ้าหน้าที่สถานีอนามัย

3. เพื่อสร้างบรรยากาศในการทำงานเป็นทีมในเชิงรุกในการดูแลผู้สูงอายุโรคความดันโลหิตสูงในชุมชน

<u>ระยะเวลาดำเนินการ</u> จัดประชุม 3 ครั้ง ในสัปดาห์ที่ 4 ของแต่ละเดือน โดยใช้เวลา 60 นาทีต่อครั้ง

กิจกรรมการประชุมปรึกษารายกรณี

1. จัดประชุมปรึกษาระหว่างพยาบาล เจ้าหน้าที่สาธารณสุข และอาสาสมัครสาธารณสุขเกี่ยวกับปัญหาสุขภาพและการควบคุมความดันโลหิตผู้สูงอายุโรคความดันโลหิตสูงรายกรณี ในรายที่ไม่สามารถควบคุมระดับความดันโลหิตได้ เพื่อวิเคราะห์ปัญหาและอุปสรรค

2. วิเคราะห์ประเด็นปัญหาและอุปสรรคในการดูแลผู้สูงอายุของอาสาสมัครสาธารณสุขและร่วมกันค้นหาแนวทางแก้ไข

3. วิเคราะห์ประเด็นปัญหาการไม่มาตรวจตามนัดของผู้สูงอายุและร่วมกันค้นหาแนวทางแก้ไข

4. ร่วมวางแผนการเยี่ยมบ้านผู้สูงอายุโรคความดันโลหิตสูงผู้สูงอายุเป็นรายบุคคลร่วมกับอาสาสมัครสาธารณสุข

3. การให้คำปรึกษาทางโทรศัพท์แก่อาสาสมัครสาธารณสุข
(hotline consultancy for onsite visit of health volunteer)

วัตถุประสงค์

1. เพื่อให้ความรู้และความเข้าใจ รวมทั้งสร้างความมั่นใจในการดูแลผู้สูงอายุโรคความดันโลหิตสูงในขณะเยี่ยมบ้าน

2. เพื่อลดปัญหาและอุปสรรคในการดูแลผู้สูงอายุโรคความดันโลหิตสูงของอาสาสมัครสาธารณสุข

ระยะเวลาดำเนินการ ตลอดเวลาในระยะเวลา 3 เดือน

กิจกรรมการให้คำปรึกษา

พยาบาลให้คำปรึกษาแก่อาสาสมัครสาธารณสุขตามแนวปฏิบัติ ดังนี้

1. พยาบาลรับฟังประเด็นปัญหาที่ต้องการคำปรึกษาจากอาสาสมัครสาธารณสุขเกี่ยวกับการปรับเปลี่ยนพฤติกรรมสุขภาพและการควบคุมความดันโลหิตของผู้สูงอายุ

2. พยาบาลให้คำปรึกษาและเสนอแนะวิธีการดูแลในประเด็นปัญหาที่พบบ่อยตามแนวทางปฏิบัติ ได้แก่ การรับประทานยาไม่สม่ำเสมอ การบริโภคอาหารไม่เหมาะสม การไม่ออกกำลังกาย อาการข้างเคียงของยาลดความดัน และการพลาดนัด

3. พยาบาลประสานแพทย์ผู้เชี่ยวชาญหรือส่งต่อเพื่อการรักษา ในกรณีประเด็นปัญหาเร่งด่วนของผู้สูงอายุโรคความดันโลหิตสูง เมื่อได้รับแจ้งจากอาสาสมัครสาธารณสุข หรือเจ้าหน้าที่สาธารณสุข ได้แก่

3.1 ผู้สูงอายุมีระดับความดันโลหิตระดับ 3 (SBP >180 และ/หรือ DBP >110 มิลลิเมตรปรอท) (ให้สัญลักษณ์สีแดง)

3.2 ผู้สูงอายุมีอาการแสดงบ่งชี้ของโรคแทรกซ้อน เช่น หมดสติ แขนขาอ่อนแรง หัวใจเต้นผิดจังหวะ เจ็บหน้าอก อาการบวม หายใจเหนื่อยหอบ นอนราบไม่ได้ อาการข้างเคียงของยาลดความดันโลหิต เป็นต้น

4. จดบันทึกประเด็นปัญหาการปรึกษาและผลการให้คำปรึกษาในแฟ้มอนามัยครอบครัว (Family folder) ของผู้สูงอายุ

การประเมินผล

1. ผลการบันทึกการประชุมปรึกษารายกรณีในแบบบันทึกการประชุมปรึกษา
2. ผลการบันทึกการให้คำปรึกษาในแฟ้มอนามัยครอบครัว (Family folder) ของผู้สูงอายุ
3. ประเด็นปัญหาสุขภาพเร่งด่วนและจำนวนผู้สูงอายุโรคความดันโลหิตสูงที่ต้องส่งต่อเพื่อรับการรักษา

ระบบข้อมูลทางคลินิก (clinical information system)

1. การติดตามและเฝ้าระวัง (monitoring)

<u>วัตถุประสงค์</u>

1. เพื่อติดตามระดับความดันโลหิตของผู้สูงอายุโรคความดันโลหิตสูงอย่างต่อเนื่อง

2. เพื่อเฝ้าระวังและป้องกันปัญหาโรคแทรกซ้อนจากการควบคุมความดันโลหิตไม่ได้ของผู้สูงอายุโรคความดันโลหิตสูง

<u>ระยะเวลาดำเนินการ</u> ติดตามระดับความดันโลหิต 3 ครั้ง ในสัปดาห์ที่ 4 ของแต่ละเดือน

<u>กิจกรรมการติดตามและเฝ้าระวัง</u>

1. เจ้าหน้าที่สาธารณสุขจัดทำสัญลักษณ์แสดงความเสี่ยงเร่งด่วนในแฟ้มอนามัยครอบครัวของผู้สูงอายุความดันโลหิตสูงตามระดับความดันโลหิต โดยแบ่งเป็น 4 ระดับ (สมาคมโรคความดันโลหิตสูงแห่งประเทศไทย, 2551) ทุก 1 เดือน พร้อมระบุวันที่ทำการจำแนกและให้สัญลักษณ์แถบสี ดังนี้

1.1 สีขาวระดับความดันโลหิต ระดับที่ควบคุมได้ตามเกณฑ์ (SBP < 140 และ/หรือ DBP < 90 มิลลิเมตรปรอท)

1.2 สีเหลืองระดับความดันโลหิตสูง ระดับ 1 (SBP=140-159 และ/หรือ DBP=90-99 มิลลิเมตรปรอท)

1.3 สีฟ้าระดับความดันโลหิตสูง ระดับ 2 (SBP=160-179 และ/หรือ DBP=100-109 มิลลิเมตรปรอท)

1.4 สีแดงระดับความดันโลหิตสูง ระดับ 3 (SBP >180 และ/หรือ DBP >110 มิลลิเมตรปรอท)

2. เจ้าหน้าที่สาธารณสุขลงบันทึกข้อมูลสำคัญทางคลินิกของผู้สูงอายุความดันโลหิตสูง ได้แก่ ระดับความดันโลหิต ค่าน้ำหนัก ระดับส่วนสูง และข้อมูลสถานะสุขภาพ ได้แก่ ความสามารถในการปฏิบัติกิจวัตรประจำวัน (functional status) และ ระดับการรับรู้ (cognitive function) ทุกเดือนในแฟ้มอนามัยครอบครัว (Family folder) เป็นรายบุคคล

2. การประเมินผลและการวางแผนเพื่อพัฒนา (evaluation and planning for developing)

<u>วัตถุประสงค์</u>

1. เพื่อประเมินผลการปฏิบัติการพยาบาลเชิงรุกในการดูแลผู้สูงอายุโรคความดันโลหิตสูง

2. เพื่อพัฒนาแผนการปฏิบัติการพยาบาลเชิงรุกให้สอดคล้องกับข้อมูลด้านสุขภาพของผู้สูงอายุโรคความดันโลหิตสูงอย่างต่อเนื่อง

<u>ระยะเวลาดำเนินการ</u> ประเมินผลและวางแผน ในสัปดาห์ที่ 4 ของแต่ละเดือน

<u>กิจกรรมการประเมินผลและการวางแผนเพื่อพัฒนา</u>

1. เจ้าหน้าที่สาธารณสุขจัดทำแผนภูมิแสดงผลของข้อมูลด้านสุขภาพของผู้สูงอายุความดันโลหิตสูง โดยเปรียบเทียบรายบุคคล และเปรียบเทียบระหว่างกลุ่มผู้สูงอายุที่ควบคุมความดันโลหิตได้สำเร็จ และกลุ่มที่ควบคุมความดันโลหิตไม่สำเร็จ เพื่อนำข้อมูลประกอบการประชุมปรึกษารายกรณีในแต่ละเดือน

การประเมินผล

1. ผลการตรวจวัดระดับความดันโลหิตของผู้สูงอายุโรคความดันโลหิตสูง
2. จำนวนผู้สูงอายุที่สามารถควบคุมความดันโลหิตได้ในแต่ละเดือน

Appendix G

The Self Management Booklet and Flip Chart for older hypertensive persons and family caregivers

(คู่มือการจัดการตนเองสำหรับผู้สูงอายุโรคความดันโลหิตสูง)

ตัวอย่าง
คู่มือการจัดการตนเอง
สำหรับผู้สูงอายุโรคความดันโลหิตสูง
เล่มที่ 1
เรื่อง รู้ทันโรค...ใช้ยาต่อเนื่อง...ลดความดันได้

ชื่อ-สกุล.....อายุ.....ปี

บ้านเลขที่.....หมู่.....ตำบล.....

อำเภอ..... จังหวัด.....

โดย

เรวดี เพชรศิราสัณห์

นิสิตปริญญาเอก

คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

ท่านรู้จักโรคความดันโลหิตสูงดีหรือยัง?

ระดับความดันโลหิต มีหน่วยเป็น “มิลลิเมตรปรอท” ประกอบด้วย ตัวเลข 2 ตัว

◎ ค่าความดันโลหิตตัวบน (ซีสโตลิก) คือ ความดันเลือดสูงสุดขณะหัวใจบีบตัว

◎ ค่าความดันโลหิตตัวล่าง (ไดแอสโตลิก) คือ ความดันเลือดต่ำสุดขณะหัวใจคลายตัว

ค่าความดันโลหิตปกติ คือ ค่าความดันตัวบน น้อยกว่า 120 มิลลิเมตรปรอท และ/หรือ ค่าความดันตัวบน น้อยกว่า 80 มิลลิเมตรปรอท

ค่าความดันโลหิตสูง คือ ความดันโลหิตตัวบนมากกว่า 140 มิลลิเมตรปรอท และ/หรือ ความดันโลหิตตัวล่างมากกว่า 90 มิลลิเมตรปรอท

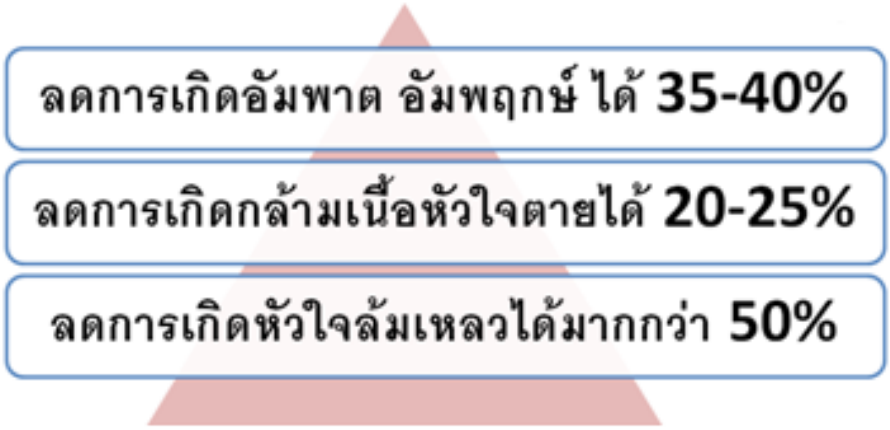
เมื่อเข้าสู่วัยสูงอายุร่วมกับระบบไหลเวียนโลหิตและหลอดเลือดซึ่งทำหน้าที่ได้ไม่ดีเท่าที่ควร หลอดเลือดเกิดภาวะเสื่อม ผนังหลอดเลือดมีแคลเซียมและไขมันมาเกาะมากขึ้น ทำให้หลอดเลือดแดงแข็งตัว เกิดโรคความดันโลหิตสูงตามมา

เป้าหมายการควบคุมระดับความดันโลหิต?

ระดับความดันโลหิตเป้าหมายสำหรับผู้สูงอายุโรคความดันโลหิตสูงที่ **ไม่มีโรคร่วม** คือ
ความดันโลหิตตัวบนน้อยกว่า **140** มิลลิเมตรปรอท และ/หรือ ความดันโลหิตตัวล่างน้อยกว่า **90** มิลลิเมตรปรอท

ระดับความดันโลหิตเป้าหมายสำหรับผู้สูงอายุโรคความดันโลหิตสูงที่ **มีโรคร่วม** ได้แก่ โรคหัวใจและหลอดเลือด โรคอัมพาตหรืออัมพฤกษ์ โรคไตวายเรื้อรัง หรือโรคเบาหวาน คือ
ความดันโลหิตตัวบนน้อยกว่า **130** มิลลิเมตรปรอท และ/หรือ ความดันโลหิตตัวล่างน้อยกว่า **80** มิลลิเมตรปรอท

ความสำคัญของการควบคุมความดันโลหิตให้ถึงเป้าหมาย



กินยาลดความดันอย่างไรจึงจะดี และต่อเนื่อง?

วิธีการวางแผนให้ผู้สูงอายุกินยาอย่างสม่ำเสมอและต่อเนื่องทำได้ ดังต่อไปนี้

1. ควรวางยาไว้ในที่เห็นง่าย (แต่พ้นมือเด็ก)
2. จัดตารางการกินยาให้ชัดเจนและง่ายที่สุด
3. ปรับพฤติกรรมการกินยาเข้ากับกิจวัตรประจำวัน
4. กินยาให้เวลาตรงกันทุกวัน
5. นึกถึงประโยชน์ของการกินยาอยู่เสมอ จะคอยเตือนให้นึกถึงเหตุผลที่ต้องกินยา
6. ไม่ควรปรับการกินยาด้วยตนเอง เมื่อมีปัญหาในการกินยา ควรปรึกษาแพทย์ และชี้แจงเหตุผลกับแพทย์ทุกครั้ง เพื่อความเข้าใจที่ถูกต้อง

การใช้สิ่งกระตุ้นเตือนให้ตนเองกินยา

ตัวอย่าง
คู่มือการจัดการตนเอง
สำหรับผู้สูงอายุโรคความดันโลหิตสูง
เล่มที่ 2
เรื่อง การออกกำลังกาย...ลดความดัน

ชื่อ-สกุล.....อายุ.....ปี

บ้านเลขที่.....หมู่.....ตำบล.....

อำเภอ..... จังหวัด.....

โดย

เรวดี เพชรศิราสัณห์

นิสิตปริญญาเอก

คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

รูปแบบการออกกำลังกายเพื่อสุขภาพสำหรับผู้สูงอายุ

การออกกำลังกายในผู้สูงอายุประกอบด้วย 3 ส่วน คือ

1) การออกกำลังกายแบบแอโรบิก

2) การเพิ่มความแข็งแรงของกล้ามเนื้อ

3) การออกกำลังกายเพื่อเพิ่มความยืดหยุ่นและการทรงตัว ดังนี้

1. การออกกำลังกายแบบแอโรบิก

ควรออกกำลังกายที่มีระดับความหนักของการออกกำลังกายปานกลางในลักษณะการเคลื่อนไหวร่างกายอย่างต่อเนื่อง ไม่รุนแรงจนเกินไป เพื่อให้หัวใจได้ทำงาน สำหรับผู้สูงอายุสามารถทำได้ง่าย คือ

เดินเร็ว

การเดินด้วยความเร็วประมาณ 5-6 กิโลเมตร/ชั่วโมง (เดินภายในครึ่งชั่วโมงให้ได้ ระยะทางประมาณ 2.5-3 กิโลเมตร) ควรเริ่มด้วยการเดินช้าๆ ก่อนประมาณ 5 นาทีแล้วค่อยเพิ่มความเร็วขึ้น ถ้าเริ่มออกกำลังกายใหม่ๆ ไม่ควรเดินไกลมาก เมื่อฝึกจนเกิดความอดทนแล้วจึงค่อยเพิ่มเวลาและความเร็วขึ้นอาจเดินตามรอบๆหมู่บ้าน

ขี่จักรยาน

การขี่จักรยานช้าๆ ความเร็วประมาณ 15-16 กิโลเมตรต่อชั่วโมง เป็นการออกกำลังกายที่ดีมาก เพราะเกิดประโยชน์ ทั้งความอดทน การทรงตัว และความคล่องแคล่วว่องไว

การใช้แรงกายในชีวิตประจำวันและการทำงานอดิเรก

การทำกิจกรรมอื่นๆ ที่มีการดำเนินอย่างต่อเนื่องไม่ ต่ำกว่า 30 นาที เช่น การซ่อมแซมบ้าน การทาสีบ้าน การตัดหญ้าโดย ใช้เครื่องตัดหญ้า เป็นการออกกำลังกายแบบแอโรบิกสำหรับผู้สูงอายุได้ การทำกิจกรรมทางกายที่เหมาะสมเป็นการฝึกฝนร่างกายของผู้สูงอายุได้เป็นออย่างดี

การเพิ่มความแข็งแรงของกล้ามเนื้อ

เป็นการออกกำลังกายที่มีการหดตัวและคลายตัว บริเวณ แขน ขา ตลอดเวลา เพื่อเพิ่มความแข็งแรงของกล้ามเนื้อในผู้สูงอายุที่สามารถนำไปปฏิบัติได้ง่าย 4 ท่า คือ

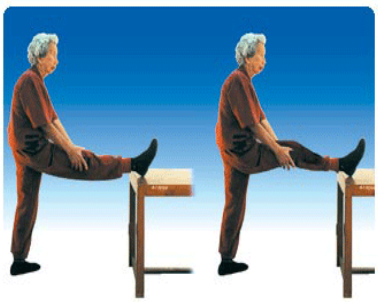
1.3 มือทั้งสองข้างถือตุ้มน้ำหนัก ขนาดน้ำหนักที่สามารถยกขึ้น-ลง 10 ครั้งได้โดยไม่รู้สึกเมื่อยล้า (ขนาดประมาณ 0.5-1.5 กิโลกรัม) ยกตุ้มน้ำหนักขึ้น-ลงอย่างช้าๆ ประมาณ 8-10 ครั้ง นับเป็น 1 ชุด พักสักครู่แล้วทำต่ออีก 1 ชุด

1.4 มือทั้งสองข้างถือตุ้มน้ำหนักในขนาดน้ำหนัก 0.5-1.5 กิโลกรัมปล่อยแขนทั้งสองข้างแนบลำตัว ยกไหล่ขึ้น-ลง ช้าๆ ประมาณ 8-10 ครั้งนับเป็น 1 ชุด พักสักครู่ แล้วทำต่ออีก 1 ชุด ขณะปฏิบัติ หายใจเข้า-ออก ตามปกติ ไม่กลั้นหายใจ ควรมี การยืดเหยียด กล้ามเนื้อภายหลังจากการออกกำลังกาย และหยุดออกกำลังกายถ้ามีอาการเจ็บกล้ามเนื้อหรือเกิดความรู้สึกเมื่อยล้า

3. การเพิ่มความยืดหยุ่นและการทรงตัวของร่างกาย

ผู้สูงอายุควรปฏิบัติทุกวันโดยใช้เวลาวันละ 5-15 นาที การออกกำลังกายประเภทนี้ เช่น 14 ท่ากายบริหาร หรือ รำไม้พลอง ทำให้การทรงตัวดีขึ้นและเพิ่มความอ่อนตัวหรือการยืดหยุ่นได้ดีในระดับหนึ่ง

การรำไม้พลองป้าบุญมีแบบประยุกต์



1. เขย่าเข่า

ยกขาข้างใดข้างหนึ่งพาดบนโต๊ะ เก้าอี้ หรือสิ่งที่รองรับน้ำหนักได้ ความสูงหรือต่ำของโต๊ะขึ้นอยู่กับสภาพของแต่ละบุคคล ขาข้างที่ยืนย่อเล็กน้อยพยายามให้หลังตรงให้มากที่สุด ใช้มือทั้งสองข้างจับที่เข่าและเขย่าขึ้นลง 30 ครั้ง เปลี่ยนข้างทำเช่นเดียวกันจนครบ 30 ครั้ง

2. เหวี่ยงข้าง

ยืนตรง แยกขาให้ห่างกันพอสมควร หน้ามองตรงไปข้างหน้า มือทั้งสองข้างจับปลายไม้ วาดไม้ออกด้านข้างลำตัวทางขวาขึ้นตั้งตรง พร้อมกับโยกตัวและย่อเข่าลงนับหนึ่ง วาดไม้ไปทางซ้ายทำเช่นเดียวกันนับสอง ทำสลับกันไปจนครบ 20 ครั้ง

ตัวอย่าง
คู่มือการจัดการตนเอง
สำหรับผู้สูงอายุโรคความดันโลหิตสูง
เล่มที่ 3
เรื่อง กินอย่างไร...ลดความดัน

ชื่อ-สกุล.....อายุ.....ปี

บ้านเลขที่.....หมู่.....ตำบล.....

อำเภอ..... จังหวัด.....

โดย

เรวดี เพชรศิราสัณห์

นิสิตปริญญาเอก

คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

ท่านรู้จักอาหารต้านความดันหรือยัง?

อาหารต้านความดันโลหิตสูง หรือเรียกว่า อาหารแดช (DASH) เป็นสูตรอาหารที่เน้นผักผลไม้ นม ไขมันต่ำ ธัญพืช ถั่ว จำกัดเครื่องดื่มแอลกอฮอล์หรือของมึนเมา รวมทั้งจำกัดเกลือโซเดียมไม่ให้เกิน 1 ช้อนชาต่อวัน

อาหารแดชช่วยลดความดันตัวบน 11.4 มิลลิเมตรปรอท และลดความดันตัวล่าง 5.5 มิลลิเมตรปรอทในกลุ่มผู้ที่มีความดันโลหิตสูง ลดความเสี่ยงต่อโรคหัวใจ และช่วยให้ยาลดความดันโลหิตทำงานได้ดีขึ้น

ตัวอย่างภาพพลิก เรื่อง รู้ทันโรค...ใช้ยาต่อเนื่อง...ควบคุมความดันได้

ภาพพลิกประกอบ
การให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่ม
เรื่อง "การออกกำลังกาย...ลดความดัน"

การออกกำลังกายเพื่อเพิ่มความยืดหยุ่นและ
การทรงตัวของร่างกาย

กายบริหาร 14 ท่า ตามสไตล์ผู้สูงวัย

ภาพพลิกประกอบ
การให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่ม
เรื่อง "กินอย่างไร...ลดความดัน"

อาหารเฉพาะโรคความดันโลหิตสูง

อาหารที่กินได้	อาหารที่ควรงด
นมพร่องมันเนย เนื้อปลา เนื้อสัตว์ไม่ติดมัน	เนื้อสัตว์ที่หมักด้วยเกลือ น้ำปลา ซีอิ๊ว เช่น กุนเชียง ไส้กรอก หมูแฮม
ข้าว ผลิตภัณฑ์จากแป้ง ที่ไม่ใส่เกลือ	ธัญพืชทุกชนิดที่ใส่เกลือ ผลิตภัณฑ์แป้งที่ใส่เกลือ
ผักสด	ผักดอง และผักกระป๋องที่ใส่เกลือ
ผลไม้สด	ผลไม้แปรรูปที่มีเกลือโซเดียม ผลไม้เชื่อม-ดอง ผลไม้กระป๋อง ที่มีเกลือและสารกันบูด ที่มีเกลือโซเดียม
	อาหารที่ใส่ผงชูรส หรือผงปรุงรส

Appendix H

The Health Mentoring Manual

for Community Health Volunteer

(คู่มือพี่เลี้ยงดูแลสุขภาพผู้สูงอายุโรคความดันโลหิตสูงในชุมชน สำหรับอาสาสมัครสาธารณสุข)

ตัวอย่าง
คู่มืออาสาสมัครสาธารณสุข
พี่เลี้ยงดูแลผู้สูงอายุโรคความดันโลหิตสูงในชุมชน

โดย

นางสาวเรวดี เพชรศิราสัณห์

นิสิต หลักสูตรพยาบาลศาสตรดุษฎีบัณฑิต

คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

อาจารย์ที่ปรึกษาหลัก : ศาสตราจารย์ ดร. วีณา จีระแพทย์

อาจารย์ที่ปรึกษาร่วม : ผู้ช่วยศาสตราจารย์ ร.อ. หญิง ดร.ศิริพันธุ์ สาสัตย์

นักวิจัยที่ปรึกษา : ผู้ช่วยศาสตราจารย์ นพ. รุ่งนิรันดร์ ประดิษฐสุวรรณ

อาสาสมัครควรมีบทบาทอย่างไร เพื่อดูแลผู้สูงอายุ ?

บทบาทของอาสาสมัครในการดูแลผู้สูงอายุ มีความสำคัญและขึ้นอยู่กับสภาพแวดล้อมในแต่ละพื้นที่ แต่ละชุมชน และความจำเป็นของผู้สูงอายุ ที่สมควรได้รับการช่วยเหลือ ดังนั้น

1. อาสาสมัครจะต้องเป็นแกนนำที่สามารถออกไปเยี่ยมผู้สูงอายุที่บ้านได้ ให้คำแนะนำให้ความรู้ทางด้านสุขภาพทั้งกายและใจแก่ผู้สูงอายุ
2. เป็นผู้ที่คอยให้ความช่วยเหลือแก่ผู้สูงอายุในทุกๆ ด้านตามความต้องการของผู้สูงอายุ โดยเฉพาะอย่างยิ่ง การให้ความช่วยเหลือทางด้านสังคมและเป็นกำลังใจแก่ผู้สูงอายุ
3. เป็นแกนนำในการถ่ายทอดความรู้ที่เป็นประโยชน์ในด้าน การสร้างเสริมสุขภาพ และการฟื้นฟูสุขภาพผู้สูงอายุ แนะนำวิธีการทำกายภาพบำบัด ให้กับสมาชิกครอบครัวซึ่งเป็นผู้ที่ต้องดูแลผู้สูงอายุ
4. สามารถให้ข้อมูลข่าวสารที่เป็นประโยชน์ต่อผู้สูงอายุและเป็นตัวแทนในการประสานงานร่วมมือกับเจ้าหน้าที่องค์การบริหารส่วนตำบล (อบต.) และเจ้าหน้าที่สถานีอนามัย (สอ.) เจ้าหน้าที่โรงพยาบาลชุมชน ในการดูแลและสร้างเสริมสุขภาพผู้สูงอายุ
5. เป็นผู้คอยกระตุ้นให้ผู้สูงอายุปฏิบัติตัวเพื่อให้มีสุขภาพดี เช่น รับประทานอาหารที่มีประโยชน์ ออกกำลังกายที่เหมาะสม และทำจิตใจให้แจ่มใส เป็นต้น
6. ช่วยเหลือดูแลด้านสุขภาพของผู้สูงอายุเท่าที่มีความรู้และประสบการณ์อย่างถูกต้อง หากไม่แน่ใจต้องปรึกษาหรือแจ้งให้ เจ้าหน้าที่สถานีอนามัย หรือ พยาบาล หรือแพทย์ ทราบ

พี่เลี้ยงสร้างสุขภาพทำกิจกรรมอะไรบ้าง ?

อาสาสมัครสาธารณสุข 1 คน ดูแลผู้สูงอายุ 10 คน ซึ่งปฏิบัติกิจกรรมการเป็นพี่เลี้ยงสร้างสุขภาพให้แก่ผู้สูงอายุใน 2 ลักษณะดังนี้

การปฏิบัติการดูแลผู้สูงอายุรายบุคคล

➢ เยี่ยมบ้านผู้สูงอายุที่อยู่ในความดูแล เพื่อประเมินปัญหาและอุปสรรคในการปรับเปลี่ยนพฤติกรรมสุขภาพ ร่วมค้นหาแนวทางแก้ไขกับผู้สูงอายุและผู้ดูแล รวมทั้งกระตุ้นเตือนผู้สูงอายุให้มาตรวจตามนัด โดยกำหนดเยี่ยมเดือนละครั้ง ในสัปดาห์ที่ 3 หลังการเข้าร่วมกิจกรรมกลุ่ม ติดต่อกัน 3 เดือน ใช้เวลา 30-45 นาทีต่อครั้ง

➢ ให้คำปรึกษาทางสุขภาพในปัญหาที่ต้องการปรับเปลี่ยนพฤติกรรมสุขภาพแก่ผู้สูงอายุและผู้ดูแล ในขณะเยี่ยมบ้านหรือทางโทรศัพท์เมื่อได้รับการติดต่อ

➢ ช่วยเหลือการออกกำลังกายบนเตียงหรือบนเก้าอี้ให้กับผู้สูงอายุที่ช่วยตนเองไม่ได้ ร่วมกับผู้ดูแล อย่างน้อยสัปดาห์ละ 1 ครั้ง ติดต่อ 3เดือน ใช้เวลาครั้งละอย่างน้อย 30 นาที

Appendix I

Summary of the intervention procedures

Timing	CPN Program	Participant
1st wk 2nd wk 3rd wk	**Interactive group education** - Medication session - Exercise session - Diet control session (HTN self management knowledge test after each session)	Community health nurse Health volunteer HTN older persons Family caregiver
1st to 12th wk	- Perform Self management behavior at home - Self management behavior daily record	HTN older persons Family caregiver
2nd, 6th, 10th wk	**Home visit** - Physical assessment to detect common problem in elder with HTN - Monitor medication adherence - Provide specific care need	Community health nurse HTN older persons Family caregiver
3rd, 7th, 11th wk	**Home visit** - Promote health behavior - Follow up reminder - Hotline consultancy with nurse	Health volunteer HTN older persons Family caregiver
4th, 8th, 12th wk	**Team meeting** - Staff training - BP control evaluation - Proactive care plan - reward for participants in BP control target	Community health nurse Health volunteer Public health officer

Appendix J

The Self Management Behavior Report Form

(แบบบันทึกการจัดการตนเองในการควบคุมความดันโลหิต)

แบบบันทึกการจัดการตนเอง
การตั้งเป้าหมายพฤติกรรม การวางแผน และ
การปรับเปลี่ยนพฤติกรรมการออกกำลังกาย

คำชี้แจง

ให้ผู้ดูแลหรือผู้สูงอายุบันทึกข้อมูลเกี่ยวกับการตั้งเป้าหมายพฤติกรรมและการวางแผนการปรับเปลี่ยนพฤติกรรมการออกกำลังกายของผู้สูงอายุ

ปัญหาการออกกำลังกายไม่ต่อเนื่องของผู้สูงอายุที่ต้องการแก้ไข คือ

……..……

เป้าหมายของการออกกำลังกายของผู้สูงอายุ คือ

……

ขั้นตอนการปฏิบัติ เมื่อปฏิบัติสำเร็จทำเครื่องหมาย √ ลงในช่องว่าง □ด้านหลัง

1……□
2……□
3……□
4……□

ผู้สูงอายุคิดว่าเป้าหมายที่เลือกมีความสำคัญที่ระดับใด

สำคัญน้อย 1 2 3 4 5 6 7 8 9 10 สำคัญมาก

ผู้สูงอายุมีความเชื่อมั่นที่จะบรรลุเป้าหมายนี้เท่าไร

ไม่มั่นใจ 1 2 3 4 5 6 7 8 9 10 มั่นใจมากที่สุด

การประเมินผล

……

……

แบบบันทึกการจัดการตนเอง เรื่อง การรับประทานยาลดความดันโลหิต

คำชี้แจง ให้ผู้ดูแลหรือผู้สูงอายุบันทึกการกินยาลดความดันโลหิตของผู้สูงอายุ โดยให้ใส่เครื่องหมาย **√** ลงใน ช่องว่าง √ ที่ตรงกับวันที่ ที่ผู้สูงอายุกินยาลดความดันโลหิต ตามแผนการรักษาของแพทย์ โดยบันทึกทุกวัน <u>หากมื้อใดไม่มียาที่ต้องใช้ไม่ต้องบันทึก</u>

เดือน																
วันที่	**ชื่อยา / ขนาดยา**	**วิธีใช้**	**มื้ออาหาร**													
			มื้อเช้า				**มื้อเที่ยง**				**มื้อเย็น**				**ก่อนนอน**	
			ก่อนอาหาร		*หลังอาหาร*		*ก่อนอาหาร*		*หลังอาหาร*		*ก่อนอาหาร*		*หลังอาหาร*			
			ใช้ยา	*ไม่ได้ใช้ยา*	*ใช้ยา*	*ไม่ได้ใช้ยา*	*ใช้ยา*	*ไม่ได้ใช้ยา*	*ใช้ยา*	*ไม่ได้ใช้ยา*	*ใช้ยา*	*ไม่ได้ใช้ยา*	*ใช้ยา*	*ไม่ได้ใช้ยา*	*ใช้ยา*	*ไม่ได้ใช้ยา*

แบบบันทึกการจัดการตนเอง เรื่อง การออกกำลังกาย

คำชี้แจง ให้ผู้ดูแลหรือผู้สูงอายุบันทึกข้อมูลเกี่ยวกับการออกกำลังกายของผู้สูงอายุ โดยให้ใส่เครื่องหมาย √ ลงใน □ ที่ตรงกับวิธีการออกกำลังกายของผู้สูงอายุ รวมทั้งระบุจำนวนครั้งการออกกำลังกายต่อสัปดาห์ และระยะเวลาออกกำลังกายต่อครั้ง

การออกกำลังกาย				สัปดาห์ที่.....วันที่.....เดือน.....พ.ศ.....						
ชนิดของการออกกำลังกาย (เลือกได้มากกว่า 1 ข้อ)										
- การเดิน วิ่งเหยาะๆ										
- 14 ท่ากายบริหาร										
- รำไม้พลอง										
- ขี่จักรยาน										
- รำมวยจีน										
- อื่น (โปรดระบุ.....)										
ระยะเวลาออกกำลังกาย	**ความถี่**		**ความหนัก**							
≥ 10 นาทีต่อเครั้ง	≥ 3 ครั้งต่อวัน	≥ 3 วันต่อสัปดาห์	รู้สึกเหนื่อย							
			ไม่รู้สึกเหนื่อย							
		< 3 วันต่อสัปดาห์	รู้สึกเหนื่อย							
			ไม่รู้สึกเหนื่อย							
	< 3 ครั้งต่อวัน	≥ 3 วันต่อสัปดาห์	รู้สึกเหนื่อย							
			ไม่รู้สึกเหนื่อย							
		< 3 วันต่อสัปดาห์	รู้สึกเหนื่อย							
			ไม่รู้สึกเหนื่อย							
< 10 นาทีต่อครั้ง	≥ 3 ครั้งต่อวัน	≥ 3 วันต่อสัปดาห์	รู้สึกเหนื่อย							
			ไม่รู้สึกเหนื่อย							
		< 3 วันต่อสัปดาห์	รู้สึกเหนื่อย							
			ไม่รู้สึกเหนื่อย							
	< 3 ครั้งต่อวัน	≥ 3 วันต่อสัปดาห์	รู้สึกเหนื่อย							
			ไม่รู้สึกเหนื่อย							
		< 3 วันต่อสัปดาห์	รู้สึกเหนื่อย							
			ไม่รู้สึกเหนื่อย							
≥ 30 นาทีต่อวัน	≥ 3 วันต่อสัปดาห์		รู้สึกเหนื่อย							
			ไม่รู้สึกเหนื่อย							
	< 3 วันต่อสัปดาห์		รู้สึกเหนื่อย							
			ไม่รู้สึกเหนื่อย							
< 30 นาทีต่อวัน	≥ 3 วันต่อสัปดาห์		รู้สึกเหนื่อย							
			ไม่รู้สึกเหนื่อย							
	< 3 วันต่อสัปดาห์		รู้สึกเหนื่อย							
			ไม่รู้สึกเหนื่อย							

แบบบันทึกการจัดการตนเองเรื่อง การรับประทานอาหารต้านความดันโลหิตสูง

คำชี้แจง ให้ผู้ดูแลหรือผู้สูงอายุบันทึกข้อมูลเกี่ยวกับการกินอาหารของผู้สูงอายุ โดยให้ใส่เครื่องหมาย √ ลงในช่องว่าง □ ที่ตรงกับพฤติกรรมการกินอาหารของผู้สูงอายุ โดยบันทึก 3 วันต่อสัปดาห์

พฤติกรรมการกิน	สัปดาห์ที่1			สัปดาห์ที่2		
	จันทร์	พุธ	ศุกร์	จันทร์	พุธ	ศุกร์
กินเนื้อติดมัน เช่น หนังเป็ด หนังไก่ เนื้อวัวติดมัน เนื้อหมูสามชั้น						
กินปลา หรือเนื้อไม่ติดมัน เช่น เนื้อแดง เนื้อไก่ เนื้อเป็ดลอกหนัง						
กินผักและผลไม้ทุกมื้อ						
ดื่มนมไขมันต่ำหรือน้ำเต้าหู้ 1-2 แก้ว						
กินถั่วเมล็ดแห้ง หรือธัญพืช						
กินอาหารผัด หรือทอด โดยใช้น้ำมันพืช						
เติมน้ำปลา เกลือปน หรือซีอิ๊ว ในอาหาร ก่อนชิมรส						
กินอาหารหมักดอง เช่น ผักดอง ปลาเค็ม ไข่เค็ม ปลาร้า น้ำบูดู เป็นต้น						
กินอาหารกระป๋อง หรืออาหาร						
แปรรูป เช่น เนื้อแดดเดียว ไส้กรอก แหนม มาม่า เป็นต้น						
ดื่มเหล้า เบียร์ หรือ ยาดอง						

Appendix K

The Hypertensive Self Management test

แบบประเมินความรู้ หลังเข้าร่วมกิจกรรมการให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่ม
เรื่อง “รู้ทันโรค...ใช้ยาต่อเนื่อง...ควบคุมความดันได้”

ชื่อ – สกุล……อายุ……..ปี

คำชี้แจง ให้ผู้สูงอายุตอบคำถามแต่ละข้อ โดยให้ทำเครื่องหมาย √ ในช่องว่าง ที่ “ถูกต้อง” หรือ “ไม่ถูกต้อง” เพียงอย่างใดอย่างหนึ่งที่ตรงกับความคิดของท่าน (กรุณาตอบให้ครบทุกข้อ)

ข้อที่	แบบทดสอบ	ถูกต้อง	ไม่ถูกต้อง
1.	โรคความดันโลหิตสูงเป็นโรคที่มีความผิดปกติเกี่ยวกับหัวใจและหลอดเลือด		
2.	ค่าความดันโลหิตที่ควบคุมได้ สำหรับผู้สูงอายุที่ไม่มีโรคอื่นร่วม คือ ความดันโลหิตตัวบนน้อยกว่า หรือเท่ากับ 140 และตัวล่างน้อยกว่าหรือเท่ากับ 90 มิลลิเมตรปรอท		
3.	การออกกำลังกาย การรับประทานอาหารไขมันต่ำ เค็มน้อย และผักผลไม้ สม่ำสเมอ สามารถลดความดันโลหิตได้		
. . .			
11.	ถ้าท่านลืมกินยาขับปัสสาวะมื้อเช้า ควรกินยาทันทีที่นึกได้ ไม่เกินเวลา 14.00 น.		
12.	ถ้าท่านลืมกินให้กินยาชดเชย 2 เท่าของวันถัดไป		

แบบประเมินความรู้ หลังเข้าร่วมกิจกรรมการให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่ม
เรื่อง “การออกกำลังกาย...ลดความดัน”

ชื่อ – สกุล……อายุ……..ปี

<u>คำชี้แจง</u> ให้ผู้สูงอายุตอบคำถามแต่ละข้อ โดยให้ทำเครื่องหมาย √ ในช่องว่าง ที่ “ถูกต้อง” หรือ “ไม่ถูกต้อง” เพียงอย่างใดอย่างหนึ่งที่ตรงกับความคิดของท่าน (กรุณาตอบให้ครบทุกข้อ)

ข้อที่	แบบทดสอบ	ถูกต้อง	ไม่ถูกต้อง
1.	การออกกำลังกายทำให้ กล้ามเนื้อแข็งแรง เพิ่มการทรงตัว และเพิ่มความยืดหยุ่นของเอ็นและข้อต่อ ป้องกันการหกล้มได้		
2.	การออกกำลังกายช่วยลดความดันโลหิตได้ เพราะทำให้หัวใจทำงานดี และหลอดเลือดยืดหยุ่น		
3.	ต้องอบอุ่นร่างกายก่อนออกกำลังกายและคลายกล้ามเนื้อหลังออกกำลังกาย 5-10 นาที เพื่อป้องกันการบาดเจ็บขณะออกกำลังกาย		
. . . .			
12.	หลีกเลี่ยงการวิ่งเร็ว กระโดด หรือขึ้นลงบันไดบ่อยๆ เพื่อป้องกันข้อเข่าเสื่อม		

แบบประเมินความรู้ หลังเข้าร่วมกิจกรรมการให้ความรู้เชิงปฏิสัมพันธ์รายกลุ่ม
เรื่อง “กินอย่างไร...ลดความดัน”

ชื่อ – สกุล……อายุ……ปี

<u>คำชี้แจง</u> ให้ผู้สูงอายุตอบคำถามแต่ละข้อ โดยให้ทำเครื่องหมาย √ ในช่องว่าง ที่ “ถูกต้อง” หรือ “ไม่ถูกต้อง” เพียงอย่างใดอย่างหนึ่งที่ตรงกับความคิดของท่าน (กรุณาตอบให้ครบทุกข้อ)

ข้อที่	แบบทดสอบ	ถูกต้อง	ไม่ถูกต้อง
1.	อาหารต้านความดันโลหิตสูง ได้แก่ อาหารไขมันต่ำ ผักผลไม้ ธัญพืช แต่จำกัดปริมาณเครื่องดื่มแอลกอฮอล์		
2.	การกินผักวันละ 4-5 ทัพพีจะทำให้ลดความดันโลหิตได้ดีกว่าการกินอาหารประเภทแป้งและน้ำตาล		
3.	การใช้วิธีต้ม นึ่ง หรือย่าง ปรุงอาหารแทนการผัดหรือทอดน้ำมันได้ ช่วยลดการเกาะของไขมันในหลอดเลือด		
. . . .			
9.	ควรกินผลไม้หรือน้ำผลไม้ แทนขนมหวาน		
10.	ควรกินอาหารเจอย่างน้อยสัปดาห์ละ 2 มื้อ		

Appendix L

Matched pair characteristic

between the experimental and control group

Experimental group			Control group		
GENDER	**DM**	**MDD**	**GEN**	**DM**	**MDD**
F1	NO	2 T	F2	NO	2T
F2	YES	2 T	F1	YES	2T
F3	NO	2 T	F48	NO	2T
M4	NO	2 T	M49	NO	2T
F5	YES	2 T	F13	YES	2T
F6	NO	2 T	F6	NO	2T
F7	YES	2 T	F7	YES	2T
F8	NO	2 T	F8	NO	2T
F9	NO	2 T	F9	NO	2T
F10	YES	2 T	F20	YES	2T
F11	YES	2 T	F25	YES	2T
M12	YES	2 T	M43	YES	2T
F13	YES	1T	F5	YES	1T
F14	YES	2T	F22	YES	2T
F15	NO	2T	F16	NO	2T
F16	NO	> 2 T	F15	NO	> 2 T
M17	YES	2T	M38	YES	2T
F18	NO	2T	F18	NO	2T
F19	YES	2T	F44	YES	2T
F20	NO	2T	F10	NO	2T
F23	NO	1T	F34	NO	1T
F22	NO	2T	F14	NO	2T
M22	NO	2T	M32	NO	2T
F24	YES	2T	F45	YES	2T
F25	NO	2T	F11	NO	2T
M26	NO	1T	M35	NO	1T
M27	NO	2T	M93	NO	2T
F28	NO	2T	F28	NO	2T
F29	NO	2T	F50	NO	2T
F30	NO	2T	F30	NO	2T
M31	NO	2T	M46	NO	2T
F32	YES	2T	F4O	YES	2T
F33	NO	2T	F23	NO	2T
F34	NO	2T	F38	NO	2T
F35	YES	> 2T	F24	YES	> 2T
F36	NO	> 2T	F26	NO	> 2T
F37	NO	2T	F37	NO	2T
F38	YES	2T	F34	YES	2T
F39	NO	2T	F27	NO	2T
M40	YES	> 2T	M17	YES	> 2T
F41	YES	2T	F41	YES	2T
M42	NO	> 2T	M42	NO	> 2T
F43	NO	2T	F12	NO	2T
M44	NO	2T	M19	NO	2T
F45	NO	2T	F24	NO	2T
F46	YES	2T	F31	YES	2T
M47	NO	2T	M47	NO	2T
F48	YES	1T	F3	YES	1T
M49	YES	2T	M4	YES	2T
F50C	YES	2T	F29E	YES	2T

Appendix M

Hypertensive self managements' knowledge score among participants in the experimental group

ID	Medication	Exercise	Diet
1	11	8	10
2	12	9	8
3	10	10	9
4	11	8	8
5	10	6	7
6	12	7	8
7	12	10	9
8	11	7	8
9	10	8	9
10	9	8	8
11	11	8	8
12	10	9	9
13	10	8	8
14	11	9	10
15	12	10	10
16	12	10	10
17	7	5	5
18	8	6	8
19	10	8	8
20	12	10	8
21	10	6	7
22	11	8	8
23	10	9	9
24	11	10	9
25	8	7	7

ID	Medication	Exercise	Diet
26	11	8	8
27	10	9	9
28	12	9	8
29	12	9	6
30	11	10	8
31	12	8	10
32	10	10	8
33	9	7	8
34	11	8	8
35	12	10	9
36	12	9	9
37	10	8	8
38	11	10	9
39	12	10	9
40	10	10	9
41	10	6	8
42	11	8	8
43	10	9	9
44	12	10	10
45	10	8	8
46	9	7	8
47	11	10	9
48	11	8	8
49	12	9	9
50	10	8	8

Scores	Medication	Exercise	Diet
Min-Max	7-12	5-10	5-10
Mean	10.64	8.44	8.38
SD	1.19	1.13	0.99

Appendix N

Number and percentage of participants categorized by self management behavior dialy self-report

Self management behavior	**Nember**	**%**
Taking Medication		
Adherence (80% of total number of medication)	47	94
Non adherence (< 80% of total number of medication)	3	6
Type of exercise		
Brisk walking or jogging	22	44
Thai wand exercise	20	40
14 for stretching	6	12
Bicycle	2	4
Others		
Intensity and Frequency		
Performed met recommendation	50	100
Performed unmet recommendation	0	0
DASH diet comsumption		
Everyday	30	60
≥ 3 day per week	20	40
< 3 day per week	0	0

Appendix O

Pictures of the Multicomponent Proactive Nursing Program Activities

Self management support

Self management support

Delivery system design

Delivery system design

Delivery system design

Decision support and clinical information system

Appendix P

Patient/participant information sheet

and

Informed consent form

ข้อมูลสำหรับประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัย

(Participant information sheet)

1. ชื่อโครงการวิจัย : ผลของโปรแกรมการพยาบาลแบบเชิงรุกต่อการควบคุมความดันโลหิตและความพึงพอใจต่อบริการพยาบาลของผู้สูงอายุโรคความดันโลหิตสูง

2. ชื่อผู้วิจัย : นางสาวเรวดี เพชรศิราสัณห์
นิสิตคณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

3. สถานที่ปฏิบัติงาน : สำนักวิชาพยาบาลศาสตร์ มหาวิทยาลัยวลัยลักษณ์
อำเภอท่าศาลา จังหวัดนครศรีธรรมราช

โทรศัพท์ที่ทำงาน : 075-672162

ที่อยู่ : บ้านเลขที่ 199/14 หมู่ 3 ตำบลท่าศาลา อำเภอท่าศาลา
จังหวัดนครศรีธรรมราช 80160

โทรศัพท์เคลื่อนที่ : 08-876-8678

E-mail : rewwadee@yahoo.com

4. คำชี้แจงของผู้วิจัย

ข้าพเจ้าชื่อนางสาวเรวดี เพชรศิราสัณห์ นักศึกษาปริญญาเอกสาขาพยาบาลศาสตร์ คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย สนใจทำการวิจัยเกี่ยวกับโปรแกรมการพยาบาลแบบแบบเชิงรุกต่อการควบคุมความดันโลหิตและความพึงพอใจต่อบริการพยาบาลของผู้สูงอายุโรคความดันโลหิตสูง วัตถุประสงค์ของเอกสารฉบับนี้จัดทำขึ้นเพื่อชี้แจงเกี่ยวกับข้อมูลของผู้ทำวิจัย วัตถุประสงค์ ลักษณะและการดำเนินการวิจัย รวมถึงประโยชน์หรืออันตรายที่อาจเกิดขึ้นได้ ซึ่งท่านสามารถที่จะเข้าใจและตัดสินใจแสดงความประสงค์ในการเข้าร่วมหรือไม่เข้าร่วมในการวิจัยครั้งนี้ได้

4.1 โครงการวิจัยนี้มุ่งพัฒนาโปรแกรมการพยาบาลแบบแบบเชิงรุกเพื่อเพิ่มการควบคุมความดันโลหิตและความพึงพอใจต่อบริการพยาบาลของผู้สูงอายุโรคความดันโลหิตสูง

4.2. ประโยชน์ของการวิจัยนี้ คือการพัฒนาโปรแกรมการพยาบาลแบบแบบเชิงรุกต่อการควบคุมความดันโลหิต โปรแกรมการพยาบาลแบบเชิงรุกนี้มุ่งเน้นการพัฒนาศักยภาพของผู้ป่วยให้สามารถจัดการโรคความดันโลหิตสูงด้วยตนเอง โดยการสนับสนุนจากผู้ดูแล อาสาสมัครสาธารณสุข และทีมการพยาบาลเชิงรุกตามรูปแบบการดูแลผู้ป่วยโรคเรื้อรัง เพื่อควบคุมความดันโลหิต การนำโปรแกรมนี้ไปใช้จะช่วยให้พยาบาลสามารถปฏิบัติการพยาบาลได้อย่างมีประสิทธิภาพ ช่วยป้องกันภาวะแทรกซ้อนและช่วยลดค่าใช้จ่ายในการรักษาพยาบาล

โรคความดันโลหิตสูงได้ นอกจากนี้สามารถนำผลการศึกษาวิจัยนี้ไปใช้ในการกำหนดนโยบายและมาตรฐานการพยาบาลในการดูแลผู้สูงอายุโรคความดันโลหิตสูงต่อไปได้

4.3 การวิจัยนี้เป็นการวิจัยเชิงปริมาณ ดำเนินการเก็บข้อมูลจากผู้ป่วยที่ได้รับการวินิจฉัยว่าเป็นโรคความดันโลหิตสูง มีอายุระหว่าง 60 ถึง 79 ปีขึ้นไป ผู้ป่วยมีสติสัมปชัญญะดี สามารถอ่านและเขียนภาษาไทยได้และยินดีที่จะเข้าร่วมในการศึกษาวิจัยครั้งนี้ จำนวนทั้งสิ้น 100 คน

4.4 สถานที่เก็บรวบรวมข้อมูล คือ โรงพยาบาลส่งเสริมสุขภาพระดับตำบลในเขตภาคใต้ จำนวน 2 แห่ง คือ โพธิ์ทอง และ โมคลาน

4.5 หลังได้รับอนุมัติให้เก็บรวบรวมข้อมูลจากโรงพยาบาลดังกล่าวข้างต้นแล้ว ผู้วิจัยจะขออนุญาตผู้อำนวยโรงพยาบาลส่งเสริมสุขภาพระดับตำบล เพื่อตรวจสอบเวชระเบียนของผู้ป่วยที่มารับการรักษาด้วยโรคความดันโลหิตสูง เพื่อศึกษาและคัดเลือกผู้ป่วยที่มีคุณสมบัติตามเกณฑ์ที่กำหนดมาเป็นผู้มีส่วนร่วมในการวิจัย และผู้วิจัยจะสอบถามความสมัครใจของผู้ป่วยที่มีคุณสมบัติดังกล่าวในการเข้าร่วมการศึกษาวิจัย ถ้าผู้ป่วยยินยอมเข้าร่วมในการศึกษาครั้งนี้ ผู้ช่วยวิจัยจะบันทึกผลการวินิจฉัยโรค และข้อมูลทางการแพทย์ ในแบบบันทึกการรักษาพยาบาล และผู้ช่วยวิจัยจะเป็นผู้เก็บรวบรวมโดยให้ผู้มีส่วนร่วมในการวิจัยตอบแบบสอบถาม

4.6 เมื่อท่านตัดสินใจเข้าร่วมการวิจัยแล้ว ผู้มีส่วนร่วมในการวิจัยจะต้องตอบแบบสอบถามเกี่ยวกับข้อมูลส่วนบุคคล ข้อมูลทางคลินิกเกี่ยวกับความดันโลหิตสูง และแบบสอบถามความพึงพอใจต่อบริการการพยาบาล จำนวน 2 ครั้ง คือ วันที่ให้ความยินยอมเข้าร่วมการวิจัยและ 3 เดือนหลังจากสิ้นสุดกิจกรรมการพยาบาล โดยใช้เวลาในการตอบแบบสอบถามประมาณ 15-20 นาที และท่านจะได้รับการตรวจและติดตามระดับความดันโลหิตโดยผู้ช่วยวิจัยทุกเดือน เป็นระยะเวลา 6 เดือน ณ โรงพยาบาลส่งเสริมสุขภาพระดับตำบล เมื่อท่านมาตรวจตามนัด

4.7 การศึกษาวิจัยครั้งนี้เป็นการวิจัยแบบทดลอง ผู้เข้าร่วมศึกษาวิจัยแต่ละท่านจะต้องใช้เวลาทั้งสิ้น 12 สัปดาห์ ผู้เข้าร่วมการศึกษาวิจัยจะถูกกำหนดเป็น 2 กลุ่ม โดยกลุ่มทดลองจะได้รับการดูแลช่วยเหลือตามปกติจากพยาบาลและได้รับโปรแกรมการพยาบาลเชิงรุกจากผู้วิจัย สำหรับกลุ่มควบคุมจะได้รับการดูแลช่วยเหลือตามปกติจากพยาบาล

โปรแกรมการพยาบาลเชิงรุก คือ โปรแกรมการพยาบาลที่มุ่งเน้นให้โดยมุ่งเน้นการพัฒนาศักยภาพของผู้ป่วยให้สามารถจัดการโรคความดันโลหิตสูงด้วยตนเอง โดยการสนับสนุนจากผู้ดูแล อาสาสมัครสาธารณสุข และทีมการพยาบาลเชิงรุกตามรูปแบบการดูแลผู้ป่วยโรคเรื้อรัง โดยท่านต้องเข้าร่วมกิจกรรม การให้ความรู้รายกลุ่มรายสัปดาห์ เป็นเวลา 3 สัปดาห์ ประกอบด้วย การรับประทานยาลดความดันโลหิต การออกกำลังกาย และการควบคุมอาหารเพื่อลดความดันโลหิต ท่านจะได้รับการประเมินความรู้ภายหลังเข้าร่วมกิจกรรมแต่ละสัปดาห์ โดยตอบแบบวัด

ความรู้เกี่ยวกับพฤติกรรมการจัดการตนเองเพื่อลดความดันโลหิต ท่านจะได้รับการติดตามเยี่ยมบ้าน 6 ครั้ง โดยผู้วิจัยและอาสาสมัครสาธารณสุข ในสัปดาห์ที่ 2 และ 3 ของแต่ละเดือน เป็นเวลา 3 เดือน เพื่อสร้างเสริมแรงจูงใจในการปฏิบัติพฤติกรรมสุขภาพ หลังจากนั้นผู้ช่วยวิจัยมีการติดตามเพื่อประเมินระดับความดันโลหิต ในวันที่ท่านมาตรวจตามนัดในแต่ละเดือน ติดต่อกัน 6 เดือน ที่โรงพยาบาลส่งเสริมสุขภาพระดับ

4.8 ผู้มีส่วนร่วมในการวิจัยมีสิทธิ์ปฏิเสธหรือถอนตัวจากโครงการวิจัยนี้ได้ตลอดเวลาโดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมการวิจัยหรือถอนตัวออกจากโครงการวิจัยจะไม่มีผลกระทบต่อการบริการและการรักษาที่สมควรจะได้รับแต่ประการใด

4.9 ความเสี่ยงที่อาจจะเกิดขึ้นเมื่อเข้าร่วมวิจัย ผู้มีส่วนร่วมในการวิจัยอาจเกิดอาการอ่อนเพลียจากการตอบแบบสอบถาม ทั้งนี้ท่านไม่ต้องรีบตอบคำถามทั้งหมด ท่านสามารถพักระหว่างตอบแบบสอบถามได้ สำหรับผู้มีส่วนร่วมในกลุ่มทดลอง ขอให้ท่านมั่นใจว่าเมื่อท่านปฏิบัตตามโปรแกรมการพยาบาลเชิงรุกที่ได้รับแล้วนั้น จะไม่เกิดอันตรายร้ายแรงกับท่านเนื่องจากโปรแกรมนี้ได้ผ่านการศึกษาค้นคว้ามาเป็นอย่างดี มีการนำไปใช้อย่างแพร่หลายในผู้ป่วยโรคความดันโลหิตสูงนานาประเทศทั่วโลก และผ่านการตรวจสอบจากผู้เชี่ยวชาญด้านโรคความดันโลหิตสูงและด้านการดูแลผู้สูงอายุในประเทศไทย จำนวน 7 ท่าน กรณีที่ท่านมีอาการผิดปกติระหว่างการเข้าร่วมศึกษาวิจัยนี้ ท่านจะได้รับการดูแลช่วยเหลือปฐมพยาบาลเบื้องต้นตามมาตรฐานการดูแลผู้ป่วยโรคความดันโลหิตสูงจากผู้วิจัย

4.10 การวิจัยครั้งนี้ไม่มีการจ่ายค่าตอบแทนแก่ผู้มีส่วนร่วมในการวิจัย และผู้มีส่วนร่วมในการวิจัยไม่มีค่าใช้จ่ายใด ๆ เพิ่มเติมทั้งสิ้น

4. 11 หากท่านตัดสินใจไม่เข้าร่วมในโครงการวิจัยนี้ ท่านก็จะได้รับการตรวจรักษาโรคของท่านตามวิธีการที่เป็นมาตรฐาน

4.12 การรักษาความลับของผู้มีส่วนร่วมในการวิจัย ข้อมูลส่วนตัวของท่านที่ได้จากแบบสอบถามจะถูกเก็บรักษาไว้ในที่ปลอดภัยและเป็นความลับไม่เปิดเผยต่อสาธารณ นำไปวิเคราะห์โดยการลงรหัสและวิเคราะห์ในภาพรวมไม่แยกเฉพาะรายเป็นรายบุคคล ผลการวิจัยจะนำเสนอในภาพรวม

4.13 หากมีข้อมูลเพิ่มเติมทั้งด้านประโยชน์และโทษที่เกี่ยวข้องการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบโดยรวดเร็วไม่ปิดบัง

4.14 หากท่านอ่านเอกสารนี้แล้วยังมีข้อความที่ท่านไม่เข้าใจ โปรดสอบถามผู้วิจัยทันทีเพื่อให้ช่วยอธิบายจนกว่าท่านจะเข้าใจดี หรือท่านอาจจะปรึกษาหารือกับญาติพี่น้อง เพื่อนสนิท แพทย์ประจำตัวของท่าน หรือแพทย์ท่านอื่น ก่อนการตัดสินใจเข้าร่วมหรือไม่เข้าร่วมการศึกษาวิจัยได้

4.15 หากท่านได้รับการปฏิบัติไม่ตรงตามที่ได้ระบุไว้ในข้อมูลสำหรับประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัย ท่านจะสามารถติดต่อกับคณะกรรมการจริยธรรมวิจัยทางการพยาบาลได้ที่ประธานคณะกรรมการจริยธรรมการวิจัยทางการพยาบาลโรงพยาบาลท่าศาลา หมายเลขโทรศัพท์ 075-521186

ท่านสามารถซักถามเพิ่มเติมได้ก่อนลงนามในใบยินยอม โดยข้าพเจ้ายินดีตอบคำถามในสิ่งที่ท่านสนใจและเกี่ยวข้องในการวิจัยครั้งนี้ ลายมือชื่อของท่านจะแสดงให้ทราบว่าท่านได้อ่านข้อความในเอกสาร รับทราบและตัดสินใจเข้าร่วมในการวิจัยครั้งนี้แล้ว หากท่านมีคำถามหรือข้อสงสัย รวมถึงประสงค์ที่จะถอนตัวจากการวิจัยครั้งนี้ ท่านสามารถซักถามหรือแจ้งความต้องการของท่านแก่ผู้วิจัยได้ตลอดเวลา โดยติดต่อได้ทางหมายเลขโทรศัพท์เคลื่อนที่ 08-876-4678

ถ้าท่านประสงค์ที่จะให้ความร่วมมือในการศึกษาวิจัยดังกล่าว โปรดกรอกข้อมูลในเอกสารหน้าถัดไป โดยท่านจะได้รับสำเนาเกี่ยวกับเอกสารนี้ 1ชุด ลายเซ็นของท่านเป็นการแสดงว่าผู้เก็บข้อมูลได้ตอบคำถามข้อสงสัยของท่านทุกข้อแล้วและท่านสมัครใจที่จะให้ความร่วมมือในศึกษาวิจัยนี้

ใบยินยอมของผู้มีส่วนร่วมในการวิจัย

(Informed Consent Form)

ชื่อโครงการ : ผลของโปรแกรมการพยาบาลเชิงรุกต่อการควบคุมความดันโลหิตและความพึงพอใจต่อการดูแลสุขภาพของผู้สูงอายุโรคความดันโลหิตสูง

เลขที่ผู้มีส่วนร่วมในการวิจัย……..

ข้าพเจ้าได้รับทราบข้อมูลจากผู้วิจัย ชื่อ นางสาวเรวดี เพชรศิราสัณห์ ปรากฏผล นิสิตปริญญาเอก หลักสูตรพยาบาลศาสตรดุษฎีบัณฑิต คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ถึงวัตถุประสงค์ ลักษณะและแนวทางการวิจัย รวมทั้งรับทราบถึงผลดีและความเสี่ยงที่อาจจะเกิดขึ้น โดยข้าพเจ้าได้ซักถาม ทำความเข้าใจเกี่ยวกับการศึกษาดังกล่าว เป็นที่เรียบร้อยแล้ว

ข้าพเจ้ายินดีเข้าร่วมการศึกษาครั้งนี้โดยสมัครใจ และมีสิทธิที่จะขอออกจากการเข้าร่วมการวิจัยนี้ได้ทุกเวลา โดยไม่จำเป็นต้องแจ้งเหตุผล ซึ่งไม่เกิดผลเสียใดๆ ต่อข้าพเจ้าและครอบครัว โดยผู้วิจัยรับรองว่าจะเก็บข้อมูลที่ได้จากการตอบแบบสอบถามไว้เป็นความลับ เก็บรักษาไว้ในที่ปลอดภัยและจะทำลายข้อมูลดังกล่าวเมื่อเสร็จสิ้นการใช้ข้อมูลตามวัตถุประสงค์ของการวิจัย และจะเปิดเผยเพียงผลการวิจัยโดยไม่มีข้อมูลส่วนบุคคลแต่อย่างใด

หากข้าพเจ้ามีข้อข้องใจหรือข้อคำถามใดๆ ที่เกี่ยวข้องในการวิจัยดังกล่าว หรือหากเกิดผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัยขึ้นกับข้าพเจ้า ข้าพเจ้าสามารถติดต่อสอบถามผู้วิจัยซึ่งอาศัยอยู่ ณ บ้านเลขที่ 199/14 หมู่ 3 ตำบลท่าศาลา อำเภอท่าศาลา จังหวัดนครศรีธรรมราช รหัสไปรษณีย์ 80160 โทรศัพท์ 075-672162 โทรศัพท์เคลื่อนที่ 088-768-4678 ได้ตลอดเวลา

ข้าพเจ้าได้เข้าใจข้อความในเอกสารชี้แจงผู้มีส่วนร่วมในการวิจัย และใบยินยอมของผู้มีส่วนร่วมในการวิจัยนี้โดยตลอดแล้ว ข้าพเจ้ายินดีเข้าร่วมการศึกษานี้ภายใต้เงื่อนไขที่ได้ระบุไว้ในข้างต้น จึงลงลายมือชื่อไว้ ณ ที่นี้

.....……	..……..... (……)
สถานที่/วันที่	ลงนามผู้มีส่วนร่วมในการวิจัย
……..	.....
สถานที่/วันที่	(นางสาวเรวดี เพชรศิราสัณห์) ลงนามผู้วิจัยหลัก
…….	.....
สถานที่/วันที่	(……) ลงนามพยาน

Appendix Q

Human Subjects Approval Document

ที่ นศ ๐๐๒๗.๓๐๑(๐๙)/๑๓๖.๑

โรงพยาบาลท่าศาลา
๑๕๘ หมู่ที่ ๓ ต.ท่าศาลา
อ.ท่าศาลา จ.นครศรีธรรมราช ๘๐๑๖๐

๑๘ พฤษภาคม ๒๕๕๔

เรื่อง รับรองโครงการวิจัย โดยคณะกรรมการองค์กรและสิทธิผู้ป่วยโรงพยาบาลท่าศาลา

เรียน นางสาวเรวดี เพชรศิราสัณห์

ตามที่ นางสาวเรวดี เพชรศิราสัณห์ นิสิตพยาบาลศาสตรดุษฎีบัณฑิต คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย (ผู้วิจัยหลัก) ได้เสนอโครงการวิจัย เรื่อง ประสิทธิผลของการปฏิบัติการพยาบาล โดยประยุกต์รูปแบบการดูแลผู้ป่วยโรคเรื้อรังต่อการควบคุมความดันโลหิตและความพึงพอใจในการดูแลสุขภาพของผู้สูงอายุโรคความดันโลหิตสูง (Effects of nursing intervention applying the Chronic Care Model on blood pressure control and satisfaction with care of hypertensive older persons) เพื่อขอรับการพิจารณาจริยธรรมการวิจัยในมนุษย์ บัดนี้ คณะกรรมการองค์กรและสิทธิผู้ป่วยโรงพยาบาลท่าศาลา ได้พิจารณาอนุมัติให้ดำเนินการศึกษาวิจัยเรื่องดังกล่าวได้

ทั้งนี้เอกสารที่คณะกรรมการรับรอง ได้แก่ ๑) โครงการวิจัย ๒) ข้อมูลชี้แจงกับผู้มีส่วนร่วมในการวิจัย ๓) ใบยินยอมของกลุ่มประชากรหรือผู้มีส่วนร่วมในการวิจัย ๔) ผู้วิจัย และ ๕) เครื่องมือทดลองการวิจัยและเก็บรวบรวมข้อมูล

ลงนาม.....
(นายแพทย์กิตติ รัตนสมบัติ)
ประธานกรรมการ

ลงนาม.....
(นางนาฏจุฑา รัตนสมบัติ)
กรรมการและเลขานุการ

Appendix R

The Permission Document for Instrument

สภากาชาดไทย
The Thai Red Cross Society

ที่ วพ 1245 / 2554

วิทยาลัยพยาบาลสภากาชาดไทย
1873 ถ.พระรามที่ 4 ปทุมวัน
กรุงเทพฯ 10330

28 เมษายน 2554

เรื่อง ยินดีให้ใช้รายงานจากการวิจัยเป็นเครื่องมือในการทำวิทยานิพนธ์

เรียน คณบดีคณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

อ้างถึง หนังสือที่ ศธ0512.11/0910 ลงวันที่ 18 เมษายน 2554

ตามหนังสือที่อ้างถึง นางสาวเรวดี เพชรศิราสัณห์ นิสิตคณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ได้ขออนุญาตใช้รายงานการวิจัยเป็นเครื่องมือในการทำวิทยานิพนธ์ ของดิฉัน ผู้ช่วยศาสตราจารย์ ดร.นงลักษณ์ สุวิสิษฐ์ ดิฉันขอเรียนให้ทราบว่ายินดีให้นางสาวเรวดี เพชรศิราสัณห์ ใช้รายงานจากการวิจัยเป็นเครื่องมือในการทำวิทยานิพนธ์

จึงเรียนมาเพื่อโปรดทราบ

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.นงลักษณ์ สุวิสิษฐ์)
รองผู้อำนวยการวิทยาลัยพยาบาลฯ ฝ่ายวิชาการ

Appendix S

List of Experts

List of experts

1. Assistant Professor Rungnirund Praditsuwan, M.D.

Faculty of Medicine, Mahidol University

2. Assistant Professor Wiroj Jiamjarasrangsi, Ph. D., M.D.

Faculty of Medicine, Chulalongkorn University

3. Associate Professor Wanapa Sritanyaratana, Ph.D., RN

Faculty of Nursing, Khon Kean University

4. Assistant Professor Naiyana Noonil, Ph.D., RN

Faculty of Nursing, Walailak University

5. Assistant Professor Kwanjai Amnatsatsuae, Ph.D., RN

Faculty of Public Health, Mahidol University

6. Miss. Jurai Klaingkloa, RN

Advanced Practitioner Nurse (Gerontological Nursing),

Tha Sala hospital, Nakhon Si Thammarat

7. Miss. Kamlai Charaprapan, RN

Advanced Practitioner Nurse (Community Health Nursing),

Phakphanang hospital, Nakhon Si Thammarat

BIOGRAPHY

Rewwadee Petsirasan was born in 1973 at Pattani province. She received a Bachelor of Nursing Science from Boromrajonani College of Nursing Songkhla in 1996. She got a Master of Nursing Science (Adult Nursing), Department of Medicine, Ramathibodi Hospital, Mahidol University in 2002. She was a staff nurse at Prince Crown Saiburi Hospital, Pattani since 1996 to 2000. She was a nurse instructor at Thammasat University, Bangkok since 2002 to 2004 and then moved to be a nurse instructor at Walailak University, Nakhon Si Thammarat since 2004 to present. She had received the scholarship for Ph.D. study from the Office of Higher Education Comission and research grant support from Graduated School, Chulalongkorn University. She had studied Philosophy Program in Nursing Science, Faculty of Nursing, Chulalongkorn University since 2007-2012.