Casual Model of Adherence to Therapeutic Regimens among Thais with Hypertension

Ekkarat Pinprapapan, Sirirat Panuthai, Taweeluk Vannarit, Wichit Srisuphan

Abstract: This cross-sectional, predictive study examined factors, direct and indirect, affecting adherence to therapeutic regimens among Thais with hypertension. A hypothesized casual model, based on empirical evidence, was used to guide the study. This indicated the relationship between adherence to therapeutic regimens and significant predictors in persons with hypertension and other chronic illnesses. Multi-stage random sampling was employed to obtain a sample of 321 Thai persons attending four hypertension clinics in public primary hospitals in a province in northern Thailand. Data were collected via seven instruments, and analyzed using descriptive statistics, Pearsons' product moment correlation coefficient and structural equation modeling using the Generalized Least Square technique in the LISREL program.

Results indicated that social support, provider-patient, health belief, and perceived self-efficacy explained 49% of variance in the subjects' adherence to therapeutic regimens. Perceived self-efficacy, social support and provider-patient communication had a direct positive effect on their adherence to therapeutic regimens. Health belief and social support were found to have an indirect effect on adherence to therapeutic regimens via perceived self-efficacy. Knowledge of hypertension had no direct or indirect effect on the adherence to therapeutic regimens but was affected by provider-patient communication. To improve adherence to therapeutic regimens among patients with hypertension, health care providers, including nurses, should recognize factors influencing adherence to therapeutic regimens. This includes social support, health belief, provider-patient communication and perceived self-efficacy.

Keywords: Adherence; therapeutic regimens; Thailand; hypertension; causal modeling

Introduction

Hypertension is an important public health problem which is a major cause of death and disability in both developed and developing countries[1] and the leading global risk factor for death.[2] The estimated percentage of adults with hypertension in different world regions in 2025 is expected to increase overall to 60% from 26.4 % in 2000.[3] In Thailand, data from the 4th National Health Examination Survey

Correspondence to: *Ekkarat Pinprapapan, RN, PhD (Candidate) Faculty of Nursing, Chiang Mai University, 110 Intawaroros Road, Muang Distric, Chiang Mai, 50200 Thailand.*
E-mail: *eakpin@hotmail.com*
Sirirat Panuthai, RN, PhD Assistant Professor, Faculty of Nursing, Chiang Mai University, 110 Intawaroros Road, Muang District, Chiang Mai, 50200 Thailand.
Taweeluk Vannarit, RN, DSN Assistant Professor, Faculty of Nursing, Chiang Mai University, 110 Intawaroros Road, Muang District, Chiang Mai, 50200 Thailand.
Wichit Srisuphan, RN, Dr.PH Professor Emerita, Faculty of Nursing, Chiang Mai University, 110 Intawaroros Road, Muang District, Chiang Mai, 50200 Thailand.

(NHES) during 2008-2009 showed that the prevalence of hypertension was 21.4%.[4] Critically, the number of Thai patients hospitalized with hypertension increased dramatically from 494,809 in 2008 to 694,309 in 2011.[5]

Adherence to therapeutic regimens (ATR) plays a key role in managing hypertension, including pharmacology and non-pharmacology treatments[6,7] and ATR implies that patients take an active role in their treatment.[8,9] The World Health Organization (WHO)[10] defined adherence to long-term therapy as the extent to which a person's behaviors of taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from their health care provider. Cohen[8] defined adherence as persistence in the practice and maintenance of desired health behaviors; and the result of active participation and agreement.

The benefits of ATR among patients with hypertension have been shown clearly in many studies. For example, patients who adhere to prescribed medication had a lower level of systolic blood pressure than those who did not adhere and their diastolic blood pressure also decreased 2.7 to 3 mmHg.[11] In another example, improvement was noted for patients with hypertension who adopted the Dietary Approaches to Stop Hypertension (DASH) diet plus weight management compared with those who adopted DASH alone for left ventricular mass.[12] The impact of poor ATR is demonstrated in increased health care costs and length of hospitalization.[13] In one study, the average cost in the low adherence group was US$1,370 for medical costs, and US$3,995 for hospitalization, but the costs decreased to US$1,346, and US$2,464, respectively, for the high adherence group.[13] Moreover, the average length of hospitalization in the low adherence group was 16 days compared with 10.6 days for the group with high adherence.[13]

Previous models of adherence have been developed, including the Five Dimensions Model of Adherence (FDMA)[10], the Medication Adherence Model (MAM)[21] and the Hill-Levine model.[22] Although, these three models have advantages to explain factors affecting adherence, they have limitations. The MAM is focused only on medication adherence and is unable to be used to demonstrate adherence to lifestyle modifications. The limitations of both the FDMA and the Hill-Levine model are that some factors cannot be modified, such as demographic factors and condition-related factors. Moreover, some factors cannot be modified by the work of nurses such as therapy-related factors. Specifically, condition-related, therapy-related and system-related factors in the FDMA, and access to health care services, living arrangements and social isolation in the Hill-Levine model, are unable to be modified by nurses' work.

Although, many studies have described influencing factors on ATR[16-22], most of these focused only on medication adherence among hypertensive patients.[17,19] There are few studies which consider the relationship between related factors and all lifestyle modifications such as self-care behaviors.[16,18] Some studies have focused on adherence to both medication and lifestyle modifications among hypertensive patients.[20,22,23] but in Thailand there is little knowledge about this with Thai populations. It is therefore necessary to examine factors that might influence ATR among Thai persons with hypertension.

Review of Literature

Social support (perceived emotional, informational, appraisal and instrumental support people received from others to control their blood pressure)[24] may benefit health by buffering stress, influencing affective states, and/or changing behaviors[25]. This has been found to be significant in ATR in persons with hypertension.[19-20] and significantly directly associated with knowledge of hypertension.[22] Although, there is apparent evidence to indicate the relationship

between social support and perceived self-efficacy in persons with hypertension, social support has been shown to have a positive influence directly on self-efficacy and treatment adherence among patients with heart failure[26-27] and type 2 diabetes.[28]

Provider-patient communication is defined as patients' perception of health care provider's behaviors in relation to general clarity, explanations, being carefully listened to, and responsiveness.[28] This has an important influence on patient health outcomes including medication adherence and lifestyle changes.[29] Provider-patient communication has been shown to directly positively influence perceived self-efficacy, and indirectly positively influence ATR among patients with hypertension.[17,22], and directly positively influence knowledge in Chinese adult patients with type 2 diabetes.[28]

Knowledge of hypertension is derived by a cognitive process, learning incurred from many resources, and then accumulating this learning further in terms of understanding, perceptions, skills, and experiences.[32] Many studies have shown that knowledge of hypertension was significantly associated with ATR among persons with hypertension[20,23,30] and has a positive direct effect on self-efficacy.[28]

In Becker's Health Belief Model, health beliefs are perceptions of susceptibility to induce complications, severity of complications, benefits of performing disease control behavior, and barriers of performing disease control behavior. The Model proposes that people will control disease conditions if they concerned these perceptions.[31] Many studies have revealed the positive relationship between health beliefs and ATR among persons with hypertension.[16,32]

Perceived self-efficacy (an individual's confidence in his or her ability to perform a specific behavior)[33] also has been noted to have a positive relationship with adherence behavior of patients with hypertension[16,18-19] Previous findings about hypertension indicate perceived self-efficacy has a positive direct influence

on ATR of patients with hypertension,[16,18-19] coronary artery disease[27] and type 2 diabetes.[28] Other studies on people with hypertension and other chronic illnesses also revealed that social support[27], knowledge of hypertension[28], and provider-patient communication[28] have been shown to directly and positively influence perceived self-efficacy.

To date, factors that affected ATR including medication and lifestyle modifications among Thai persons with hypertension were not clearly known and less studied.[34] Thus is a need to develop a causal model of ATR to enhance the understanding of the direct and indirect effects of modifiable adherence factors among Thais with hypertension.

Study aim

To examine a hypothesized causal model of ATR among Thais with hypertension, so as to assess factors affecting their adherence and inform the development of effective nursing interventions for such people.

Hypothesized Causal Model of Adherence to Therapeutic Regimens

The hypothesized causal model of ATR among Thais with hypertension (see **Figure 1**) was developed based upon empirical evidence which indicated the relationship between ATR and significant predictors in persons with hypertension and other chronic illnesses. The definition of adherence was derived from the integration of the definition given by WHO[10] and the attributes of adherence.[7] Adherence was therefore defined in this study as the extent of agreement and performance of persons with hypertension about the recommended behaviors provided by health care providers. The four attributes of adherence, alignment of patients' behaviors and recommendations; mastery of new behaviors; ongoing collaboration with health

care providers on treatment plan; and their perceived ability to meet optimal blood pressure[7], were integrated into the adherence component of the study framework. Five selected variables; health belief, knowledge of hypertension, social support, provider-patient communication and self-efficacy, were included to explain ATR. By focusing on previous research and reviewing the literature about hypertension and other chronic illnesses, the hypothesized relationships in relation to ATR for Thais with hypertension were:

a) health belief will have a direct positive influence on ATR;

b) knowledge of hypertension will have a direct positive influence and an indirect positive influence, through perceived self-efficacy;

c) social support will have a direct positive influence and an indirect positive influence, through knowledge of hypertension and perceived self-efficacy;

d) provider-patient communication will have a direct positive influence and an indirect positive influence, through perceived self-efficacy; and

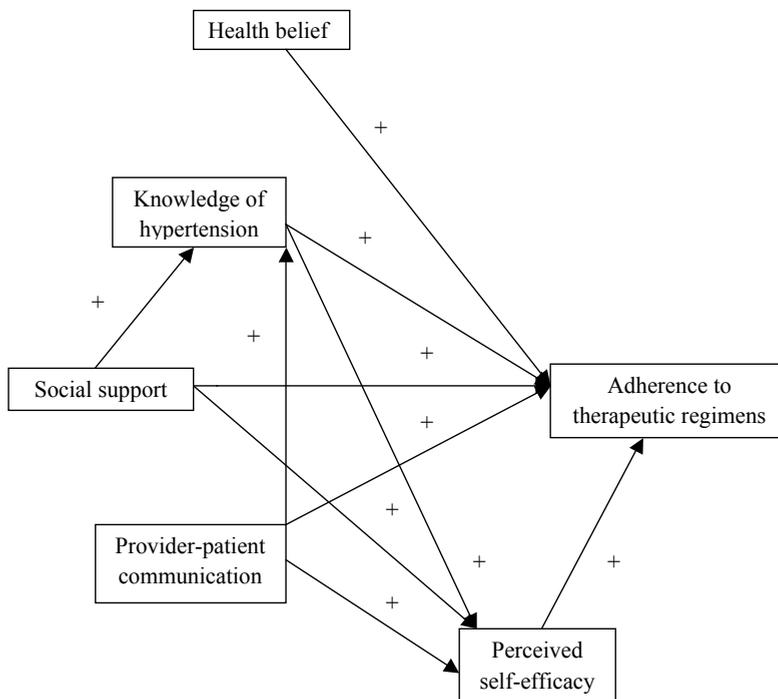e) perceived self-efficacy will have a direct positive influence.

Figure 1 Hypothesized Conceptual Framework for the Causal Model of Adherence to Therapeutic Regimens among Thais with Hypertension

Method

Design: A cross-sectional, predictive, correlational design was used to test the proposed hypothesized model.

Ethical Considerations: The study was approved by the Research Ethics Review Committee of Faculty of Nursing of the primary investigator's (PI) institution, the administrator of Provincial Public Health Office of one northern province of Thailand, and the directors of the four hospitals used as study sites. All eligible subjects were informed about: the nature and processes of the study; anonymity and confidentiality issues; voluntary involvement; and the right to withdraw at any time without repercussions. Subjects agreeing to participate were asked to sign a consent form.

Setting: The setting was hypertension clinics in four primary care hospitals located in a northern Thai province, which has a high numbers of patients hospitalized with hypertension.[5]

Sample: The sample size was based on 13 observed variables of five selected predictors from the hypothesized model. The desired sample size was determined to be 292 subjects, based on an acceptable level of power of 0.80, an alpha level of 0.05 and effect size of 0.064. An additional 29 (10%) subjects were added for a dropout rate, resulting in a desired sample of 321. Multistage random sampling was performed to gather subjects in two steps: 1) simple random sampling technique was used to selected four hypertension clinics from 12 community hospitals in one province; and 2) the PI recruited the potential subjects who met the inclusion criteria by reviewing the medical records at the study sites. Once the names of potential subjects were identified, simple random sampling was used to obtain subjects. Inclusion criteria were:

1) being an adult Thai with essential hypertension,

2) 35-59 years of age (as the prevalence of hypertension will increase with in this age[35]);

3) being diagnosed with essential hypertension for at least 6 months because changing into new behaviors will require at least 6 months[36];

4) taking at least one antihypertensive drug;

6) having no symptoms which make them unable to respond to the questionnaires;

5) able to understand and communicate in Thai; and

6) willing to participate in the study.

Instruments: Seven instruments were used to collect data: The Demographic Data Form, developed by the PI, requested information regarding: gender; age; marital status; educational level; personal income; occupation; medical payment; living arrangements; whether an in-patient admitted with hypertension or complications thereof; duration of being diagnosed with hypertension; complications of hypertension; the amount of medication per day; the intervals between follow-up appointments; and blood pressure level.

The *Hypertensive Social Support Scale* (HSSS) was modified from the Social Support Questionnaire developed by Pongudom[37] which had a reliability of 0.96. It has 20 items to measure the level of perceived support (emotional, informational, appraisal and instrumental support) for performing recommended behaviors to achieve target blood pressure level among persons with hypertension. Examples of the items are: "You perceive that other people are caring for your illness and hypertension treatment" and "You receive help in preparing food or cooking an appropriate food for hypertension". Each item had possible responses ranging from 1=not true to 4=strongly true. A total score was obtained by summing the response values across all items, ranging from 20-80. Higher scores indicated higher social support. The instrument's internal consistency coefficient in this study was 0.84.

The *Provider-patient Communication Scale* (PCS) was modified from the Provider-Patient Communication Scale developed by Xu[28], which had a reliability of 0.74. The 9-item PCS was used to measure subjects' perception of provider's communication:

talking clearly, explaining medical care and responding to patients' concern. Examples of items were: "The physician or nurses use medical words that you did not understand?" and "Your physician/pharmacist/nurse explained to you how to take anti-hypertensive drugs (when, how much, and for how long)." Each item had possible responses ranging from 1=never to 4=always, and 1=always to 4=never for negative items. The total score was obtained by summing response values across all items, ranging from 9-36. Higher scores indicated higher communication between patients and health care providers. The reliability of PCS in this study was 0.77.

The *Knowledge of Hypertension Scale* (KHS) was modified from the Knowledge of Hypertension Questionnaire developed by Limcharoen[23], the reliability of which was 0.84. The KHS has 24 items used to measure knowledge of hypertension including causes of hypertension, symptoms and complications, pharmacological and non-pharmacological management. Item examples include: "Salty food, such as salted fish, fermented fish, canned food, pickles can increase blood pressure" and "People who are obese or over weight are at risk for hypertension." Each item was scored either "yes" or "no." A score of 1 was given to a correct response whereas 0 was given to an incorrect response and "don't know". The total score, obtained by summing the response values across all items, ranged from 0-24, with a higher score indicating higher knowledge of hypertension. The reliability of KHS in this study was 0.83.

The *Health Belief for Hypertensive Patient Scale* (HBHS) was modified from the Health Belief Questionnaire developed by Riounin[38] and the reliability of this was 0.81. The HBHS has 28 items to measure perceived: susceptibility to induce complications, severity of complications, benefits of performing disease control behavior and barriers of performing disease control behavior for hypertensive patients. Examples of items are: "Having had hypertension induces stroke" and "Having an economic problem is a barrier which prevents you from having a follow-up visit." Possible responses range from 1=not agree to 4=mostly agree and 1=mostly agree to 4=not agree for negative items. The total score was obtained by summing the response values across all items, and ranged from 28-112. Higher scores indicated more appropriate health belief. The reliability of HBHS in this study was 0.89.

The *Hypertensive Self-efficacy Scale* (HSS) was modified from the Perception of Self-efficacy Questionnaire developed by Kairoj[39] and had an original reliability of 0.80. This 26-item instrument measured the perception of persons with hypertension regarding their confidence to perform required recommendations, including taking of antihypertensive medication, dietary modifications, weight control, physical exercise, avoiding risk factors, stress management, and follow-up visits to control their own blood pressure. Examples of the items were "You can take medicine for hypertension treatment every day" and "You can visit the doctor/nurse before the follow-up date if you have symptoms such as headache, nausea, vomiting and paralysis." Each item had four possible responses ranging from 1=less confidence to 4=most confidence. A total score was obtained by summing the response values across all items, ranging from 26-104. Higher scores indicated higher perceived self-efficacy. The instrument's internal consistency coefficient in this study was 0.96.

The *Hypertensive Adherence to Therapeutic Regimens Scale* (HATRS) was modified from the Adherence to Lifestyle Modifications Questionnaire by Limcharoen[23], which had an original reliability of 0.81. The Scale has 29 items measuring the extent of agreement and performance of persons with hypertension about the recommended behaviors provided by health care providers. It includes: antihypertensive medication taking, dietary modifications, weight control, smoking cessation, physical activity, alcohol intake limitation, and stress management, and an added four attributes of adherence. These are: alignment of patients' behaviors

and health recommendations, mastery of new behaviors and health knowledge, ongoing collaboration with health care providers on treatment plan and patients' perceived ability to meet optimal blood pressure. Examples of the items include: "You take your antihypertensive drug as prescription" and "You can prevent complications of hypertension such as paralysis, heart disease or kidney disease by your self-care." Each item had possible responses ranging from 1=not true to 4=strongly true. A total score was obtained by summing the response values across all items, ranging from 29-116. Higher scores indicate higher ATR. The instrument's internal consistency coefficient in this study was 0.92.

All instruments, except for the PCS, were originally written in Thai. The PCS was originally in English and translated from English to Thai by the PI and a translator, who was an expert in foreign language, and then back-translated from Thai to English by two bilingual experts. Comparison of the back-translated version of PCS to the original English version was made by the PI and her advisors. Finally, the research team modified the items to make a closer cultural and contextual fit for Thai persons with hypertension.

Procedure: The name list of potential subjects meeting the inclusion criteria was generated by reviewing medical records at the study sites, and randomly selection followed. Then, potential subjects were informed about the study and ethical considerations. Those agreeing to participate were asked to sign a consent form. Subjects completed the seven self-reported instruments in privacy with the PI, in respective order, over 45-60 minutes. The font size of all self-reported scales was enlarged, and eye glasses were provided for subjects if these were needed. If a subject became tired during data gathering, he/she was given a short break.

Data analysis: Descriptive statistics were used to describe demographic characteristics. Pearson's product moment correlation was used to analyze the bivariate relationship among all study variables and their respective components. A structural equation model, using the Generalized Least Squares (GLS) technique in the LISERL 8.7 program, was utilized to test the relationship between the five factors (i.e. health belief; knowledge of hypertension; social support; provider-patient communication; and perceived self-efficacy) and ATR.

Results

Subjects had a mean age of 49.29 years (SD = 5.79). Most were; female (65.73%); married (83.18%); employed (85.67%); had an elementary school education (73.52%); and lived with family members (92.52%). Approximately 37% were farmers and 52.96% earned an income <5,000 baht per month. Most had health care coverage insurance (71.34%). Subjects' mean duration of diagnosis with hypertension was 3.79 years (S.D. = 3.35) Interestingly, 92.21% had no complications from hypertension and 82.24% had not been admitted to hospital with hypertension or its complications. Subjects received at least one type of antihypertensive out of three possible types and the drugs Amlodipine (51.09%), Enalapril (38.01%) and HCTZ (23.36%) were often used to treat them. The number of anti-hypertensive drugs used daily ranged from 0.5 to 5 pills. Of the subjects, 55.76% used antihypertensive drugs, 0.5-1 pill per day, and 83.18% took their drugs once daily while others had a range of to 3 times per day. The average duration of a follow-up visit was 2.53 (S.D. = 0.76) months. Nearly 70% of subjects were able to control their blood pressure to <140/90 mmHg.

For model testing, all the fit indices showed the hypothesized model did not fit the actual data. Therefore, modification of the model was performed by utilizing modification indices and theoretical

reasonability until it fit the data well. The path coefficients that were not significant, and negative directions, were deleted, that is the paths from health belief and knowledge of hypertension to ART; knowledge of hypertension and provider-patient communication to perceived self-efficacy; social support to knowledge of hypertension. The path from health belief to perceived self-efficacy was added, based on modification indices to improve indices for a goodness-of-fit. After deletion, all fit indices for goodness-of-fit testing showed the final model was an adequate fit with the data and all path coefficients was significant. Results of the direct and indirect and total effects of ATR of Thais with hypertension are presented in **Table 1**.

Table 1   Structural Path Coefficients of the Final Model of Adherence to Therapeutic Regimens (N = 321)

Causal variables	Affected variables								
	Knowledge of hypertension			Perceived self-efficacy			Adherence to therapeutic regimens		
	TE	IE	DE	TE	IE	DE	TE	IE	DE
Knowledge of hypertension	–	–	–	–	–	–	–	–	–
Provider-patient communication	0.60**	–	0.60**	–	–	–	0.42**	–	0.42**
Social support	–	–	–	0.38**	–	0.38**	0.34**	0.21**	0.13**
Health belief	–	–	–	0.42**	–	0.42**	0.23**	0.23**	–
Perceived self-efficacy	–	–	–	–	–	–	0.54**	–	0.54**

note. TE = Total effect, IE = Indirect effect, DE = Direct effect, **$p < .01$

In the final causal model (see **Figure 2**), 49% of total variance in was predicted by four significant predictors (perceived self-efficacy, provider-patient communication, social support and health belief). The final model depicted a direct positive influence of perceived self-efficacy, social support, and provider-patient communication on ATR. Social support and health belief indirectly influenced ATR via perceived self-efficacy. Knowledge of hypertension did not significantly affect ATR, but was affected by provider-patient communication. Perceived self-efficacy was the mediating variable with the strongest positive effect, between social support and health belief and ATR.
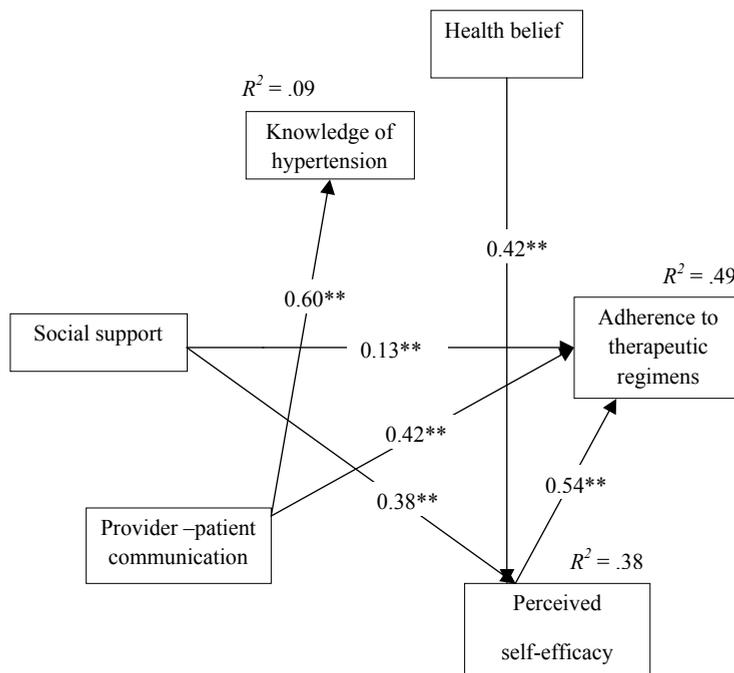
Chi-square (χ^2) value = 2.19; df = 5; p = .82; RMSEA = 0.00; GFI = 1.00; AGFI = 0.99; RMR = 0.014

**p < .01.

Figure 2 Final Modified Model of Adherence to Therapeutic Regimens among Thais with Hypertension

Discussion

Our results suggest that all independent variables, except knowledge of hypertension, can explain 49% of variability of ATR in Thais with hypertension. The remainder of the variance in predicting adherence behavior might be explained by either non-modifiable or modifiable variables which were not examined in this study.

Consistent with previous studies on patients with hypertension[22,27], this study found that knowledge of hypertension had neither a direct or indirect effect on ATR. This involves complex behaviors, including pharmacological and non-pharmacological treatment to manage illness, and requires people to collaborate with their health care provider to get mutual agreement

about a plan to attain and maintain the target goal of treatment. Knowledge alone would not instantly provide proficient performance unless the activity was very simple.[33] So, knowledge of hypertension may not have been strong enough to affect ART among subjects in this and other studies.

Quality of communication is related to positive outcomes like greater satisfaction, lower stress, and greater adherence.[29] When patients trust and feel confident talking with health care providers, they are more likely to perform required behaviors and participate in their treatment plan. This study revealed that communication between health care providers and subjects had a positive effect on adherence behaviors and is consistent with prior findings regarding hypertension[22,29] and other chronic illnesses.[28] This

finding adds additional support to evidence that persons with hypertension, who have better communication with health care provider, are more likely to perform adherence behaviors. Provider-patient communication also showed a large effect on knowledge of hypertension, concurring with a study among patients with type 2 diabetes.[28] We believe therefore that communication between health care providers and persons with hypertension is the most important variable which could increase patients' understanding about their illness. Essentially, health care providers play an important role in assessing and helping patients to overcome their barriers to perform adherence behavior.

The findings were also consistent with previous studies with patients with hypertension,[19-20, 25, 37] in that social support had positive direct and indirect effects on adherence behaviors. Social support from others is an important facilitative resource for patients with hypertension to perform recommended behaviors and empower them to participate in the treatment plan. Social support also influences abilities to adjust to and live with illness.[25] This study also found that social support was a predictor variable of perceived self-efficacy and consistent with prior findings of persons with chronic illness.[27-28] Subjects who had better social support were more likely to increase perceived self-efficacy. Social support is one source of information influencing self-efficacy.[33] Persons with hypertension who receive and perceive support from others to control blood pressure will increase their ability to perform recommended behaviors since they believe that they have useful resources to enhance them to overcome the barriers and also achieve the treatment goal. As well, they are able to cope with threatening situations by using those useful sources.

Health belief, and perceived susceptibility, severity, benefit and barriers are the personal perceptions about people's illness.[31] Also, if people with hypertension perceive the benefit of recommended behaviors, have less barriers to perform behaviors and are at risk of serious outcomes of hypertension and its complications,

they are more likely to engage in recommended behaviors.[31] Surprisingly, health belief in this study indirectly influenced adherence behaviors via perceived self-efficacy. This finding is consistent with a prior study of hypertensive patients demonstrating health belief had no direct effect on ATR[40]. It was important to explore the effect of health belief on perceived self-efficacy since there was no prior study to support this effect. Perceptions of susceptibility to illness and of benefits of taking the recommended behaviors could both be considered as expectations of outcome which may play the largest role influencing initial motivation and decision to change health behaviors.[41] When persons with hypertension perceive their obstacles and know the benefits of consequences, they are able to evaluate their capabilities to overcome such obstacles.[41] It is therefore assumed that those with appropriate perception of health belief (perceived susceptibility, severity and benefit with a high level and perceived barrier of a low level) can influence perceived self-efficacy and thus improve adherence behaviors.

Congruent with previous research regarding perceived self-efficacy of people with hypertension[16,18-19,22] perceived self-efficacy was the strongest predictor and the mediating factor of ATR. Moreover, social support and health belief had a positive direct influence on perceived self-efficacy. According to Bandura (1997),[33] the stronger the perceived self-efficacy, the more active the effort made to change behavior. This finding confirms that those with hypertension, who perceive a high level of their competency to perform adherence behaviors, have better ATR. In general, social support together with health belief has more power to influence perceived self-efficacy among persons with hypertension. As a result, they also have better adherent behaviors.

Limitations and Recommendations

When interpreting and using our findings, there are matters that need to be considered since

generalizability of the findings may be limited. First, the inclusion criteria limited selection of subjects and thus could findings can only be compared to people with similar characteristics elsewhere. Second, subjects come from only one province in the north of Thailand and comparison to findings in other provinces needs to be cautious. Third, our cross–sectional design conducted at one point in time may not reflect the process of changing behaviors. Lastly, a limitation regarding measurement was the relatively low Cronbach's alpha value for the Provider–patient Communication Scale (0.77). Therefore, some caution is warranted when applying this Scale.

Future studies should examine each effect of the four subscales of health belief (perceived: susceptibility to induce complications; severity of complications; benefits of performing disease control behavior; and barriers of performing disease control behavior for patients with hypertension). This would help determine which subscales of health belief have a direct or indirect effect on ATR, and which other predicting variables have direct or indirect effect on those of subscales. Moreover, this study should be replicated and comparison made of various subgroups of persons with hypertension, including groups with controlled and uncontrolled hypertension, and females and males to understand how different or similar factors can contribute to ATR predictors.

Implications for nursing practice

This study provides evidence to encourage nurses to assess factors of social support, provider–patient communication, health belief and perceived self–efficacy. This will help in understand patients' problems, barriers and useful resources to perform the required behaviors for controlling blood pressure. Additionally our findings also provide primary nursing knowledge for understanding ATR and its predicting factors. Sufficient data should be generated to assist with the

development and testing of nursing interventions to promote ATR among Thai persons with hypertension.

Acknowledgement

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แบบจำลองเชิงสาเหตุของความร่วมมือในการรักษาในคนไทยที่เป็นโรคความดันโลหิตสูง

เอกรัตน์ ปิ่นประภาพันธ์, ศิริรัตน์ ปานอุทัย, ทวีลักษณ์ วรรณฤทธิ์, วิจิตร ศรีสุพรรณ

บทคัดย่อ: การศึกษาเชิงพรรณนาแบบภาคตัดขวางครั้งนี้มีวัตถุประสงค์เพื่อทดสอบปัจจัยที่มีอิทธิพลทางตรงและทางอ้อมต่อความร่วมมือในการรักษาของคนไทยที่เป็นโรคความดันโลหิตสูง โดยแบบจำลองสมมติฐานเชิงสาเหตุในการศึกษาครั้งนี้ใช้การประมวลความรู้จากหลักฐานเชิงประจักษ์ที่บ่งบอกถึงความสัมพันธ์ระหว่างปัจจัยทำนายและความร่วมมือในการรักษาทั้งผู้ที่เป็นโรคความดันโลหิตสูงและในผู้ที่เจ็บป่วยเรื้อรังอื่นๆ กลุ่มตัวอย่างถูกคัดเลือกโดยวิธีการสุ่มแบบหลายขั้นตอน คือผู้ที่เป็นโรคความดันโลหิตสูงจำนวน 321 ราย ที่มารับบริการที่คลินิกโรคความดันโลหิตสูงโรงพยาบาลสังกัดกระทรวงสาธารณสุขระดับปฐมภูมิ 4 แห่ง ในจังหวัดภาคเหนือตอนบน การเก็บข้อมูลโดยใช้แบบสอบถามจำนวน 7 ฉบับ การวิเคราะห์ข้อมูลใช้สถิติเชิงพรรณนา สถิติสหสัมพันธ์เพียร์สัน และสถิติการวิเคราะห์โมเดลสมการโครงสร้าง

ผลการศึกษาแบบจำลองเชิงสาเหตุของความร่วมมือในการรักษาโดยปัจจัยทั้ง 4 ปัจจัยประกอบด้วย การสนับสนุนทางสังคม การติดต่อสื่อสารระหว่างบุคลากรสุขภาพและผู้ป่วย ความเชื่อทางด้านสุขภาพ และการรับรู้สมรรถนะแห่งตนสามารถอธิบายความแปรปรวนของความร่วมมือในการรักษาได้ร้อยละ 49 โดยการรับรู้สมรรถนะแห่งตน การสนับสนุนทางสังคม และการติดต่อสื่อสารระหว่างบุคลากรสุขภาพและผู้ป่วยมีอิทธิพลโดยตรงทางบวกกับความร่วมมือในการรักษา ความเชื่อทางด้านสุขภาพและการสนับสนุนทางสังคมมีอิทธิพลโดยอ้อมทางบวกกับความร่วมมือในการรักษาโดยผ่านการรับรู้สมรรถนะแห่งตน ความรู้เกี่ยวกับโรคความดันโลหิตสูงไม่มีอิทธิพลโดยตรงและโดยอ้อมกับความร่วมมือในการรักษา แต่การติดต่อสื่อสารระหว่างบุคลากรสุขภาพและผู้ป่วยมีอิทธิพลโดยตรงทางบวกต่อความรู้เกี่ยวกับโรคความดันโลหิตสูง ดังนั้นในการส่งเสริมความร่วมมือในการรักษาและป้องกันภาวะแทรกซ้อนของโรคความดันโลหิตสูง บุคลากรสุขภาพควรตระหนักถึงปัจจัยที่มีอิทธิพลต่อความร่วมมือในการรักษาได้แก่ การสนับสนุนทางสังคม ความเชื่อทางด้านสุขภาพ การติดต่อสื่อสารระหว่างบุคลากรสุขภาพและผู้ป่วย และการรับรู้สมรรถนะแห่งตน

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คำสำคัญ: ความร่วมมือในการรักษา/ คนไทยที่เป็นโรคความดันโลหิตสูง/ แบบจำลองเชิงสาเหตุ

ติดต่อที่: เอกรัตน์ ปิ่นประภาพันธ์, RN, PhD (Candidate)
คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ 110 ถ. อินทวโรรส จังหวัดเชียงใหม่
50200 ประเทศไทย E-mail: eakpin@hotmail.com
ศิริรัตน์ ปานอุทัย, RN, Ph.D. ผู้ช่วยศาสตราจารย์ คณะพยาบาลศาสตร์
มหาวิทยาลัยเชียงใหม่ ประเทศไทย
ทวีลักษณ์ วรรณฤทธิ์, RN DSN. ผู้ช่วยศาสตราจารย์ คณะพยาบาลศาสตร์
มหาวิทยาลัยเชียงใหม่ ประเทศไทย
วิจิตร ศรีสุพรรณ, RN, DrPH. ศาสตราจารย์ เกียรติคุณ คณะพยาบาลศาสตร์
มหาวิทยาลัยเชียงใหม่ ประเทศไทย