Improving Health Behaviors and Blood Pressure Control through a Self-Efficacy Health Promotion Program among Adults with Uncontrolled Hypertension: A Quasi-Experimental Study

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Abstract: Uncontrolled hypertension can result in potentially serious health consequences. Controlling blood pressure requires appropriate health behaviors, which can be challenging for those living in urban communities that trigger unhealthy lifestyles. Self-efficacy increases motivation to participate in health activities, but self-efficacy enhancement programs for adults with uncontrolled hypertension living in urban communities in Thailand are scarce. This quasi-experimental study aimed to determine the effectiveness of the Self-Efficacy Health Promotion Program on health behaviors and blood pressure control among adults with uncontrolled hypertension. Participants were 60 adults purposively selected from two urban communities in central Thailand. The experimental group (n = 30) underwent the Program, while the control group (n = 30) received the usual care from health professionals. Data were collected using a Demographic and Health Information Questionnaire, the Self-efficacy in Controlling Hypertension Questionnaire, the Health Behavior for Controlling Hypertension Questionnaire, and a mercury sphygmomanometer. Data were analyzed with descriptive statistics, independent t-tests, and paired t-tests.

The results indicated that the experimental group achieved significantly higher post-intervention self-efficacy scores and health behavior scores and significantly lower systolic and diastolic blood pressure when compared to pre-intervention and the control group. The Self-Efficacy Health Promotion Program offers a potential strategy for community nurses to build the confidence of urban adults to adopt appropriate health behaviors for hypertension control. Further research is needed to test and refine this program for better integration into clinical practice.

Keywords: Adults, Blood pressure, Health behaviors, Health promotion, Self-efficacy, Uncontrolled hypertension, Urban communities

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Introduction

Hypertension is a prevalent health issue defined by persistently elevated arterial blood pressure.[1] Globally, 33% of those aged 30 to 79 suffer from hypertension.[1] While the prevalence of hypertension is decreasing in high-income countries, it is rising in a striking manner in Southeast Asian nations,[2] including Thailand, where the number of adults with hypertension was 16,364.1 per 100,000 people.[3] Uncontrolled hypertension (UHTN) is indicated by systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg in spite of hypertension treatments.[4] If left improperly managed, UHTN leads to damage to the arteries and other organs, resulting in stroke, myocardial infarction, and other life-threatening complications.[1,4] UHTN, found in 79% of adults with hypertension worldwide[1] and 50.6% in Thailand,[5] is the primary risk factor of mortality at an early age, accounting for a projected 10.8 million preventable deaths yearly and 235 disability-adjusted life years (DALYs).[6] Thus, target blood pressure levels must be maintained not only through pharmacological treatments but also through changing health behaviors.[4]

Appropriate health behaviors for blood pressure control include eating a balanced diet, adequate physical exercise, and stress management.[4] However, health behaviors are influenced by the environment that shapes people's lifestyles.[7] Urbanization quickens the pace of life, making people more likely to adopt unhealthy behaviors such as choosing motorized transportation over walking,[8] having sedentary lifestyles,[8,9] eating out and drinking alcohol to relieve stress.[10] A national survey revealed an increase in Thai adults' health risk behaviors, such as heavy alcohol consumption, inadequate physical activity, and low consumption of fruits and vegetables.[3] This is especially the case with adults with UHTN in urban areas, as 45.8% of them were found to have poor health behaviors in diets, exercise, stress management, smoking, and alcohol consumption.[11] In Bangkok Metropolitan, 70.3%, 14.4%, and 17.4% of male adults and 1.8%, 4.3%, and 29.3% of female adults consumed alcohol, smoked, and did not exercise, respectively.[12] Adults with UHTN in Bangkok had poor self-care for hypertension (80.1%), including unhealthy eating (90.2%), physical inactivity (75.8%), and poor weight control (96.9%).[13] As changing lifestyles is a process one must follow consistently, self-efficacy is essential in fostering motivation and interests to initiate and sustain long-term health-promoting behaviors.[14] Higher self-efficacy is linked to greater motivation for self-care and better self-care behavior in adults with hypertension.[15] In recent literature related to hypertension, most interventions focused on giving self-management education and skill training,[16,17] and motivation enhancement,[18-20] but they were rarely based on self-efficacy theory to guide the elements of the program. Earlier self-efficacy enhancement programs were effective in improving knowledge and health behaviors and reducing the blood pressure of both adults and older adults with UHTN in rural and suburban areas,[21,22] and adults at risk of UHTN,[23] but there is a paucity of self-efficacy enhancement programs, particularly for adults with UHTN living in urban communities in Thailand. This highlights the need to enhance self-efficacy in controlling hypertension among adults with UHTN in urban communities who tend to have low self-efficacy in hypertension management,[13] perceiving health behavior change as challenging and unlikely achievable.[24] Thus, this study intended to develop a program for promoting self-efficacy in improving health behaviors and blood pressure control among adults with UHTN in urban communities.

Conceptual Framework and Review of Literature

Blood pressure control is achieved when systolic blood pressure is under 140 mmHg, and diastolic blood pressure is under 90 mmHg.[4] Adults with UHTN are recommended to practice certain health behaviors

to control blood pressure.[4] For diet, the most common dietary method for controlling blood pressure is the Dietary Approaches to Stop Hypertension (DASH) diet. It involves reducing the consumption of foods with sodium, cholesterol, and saturated fats, and consuming more dietary fiber, protein, calcium, minerals such as potassium and magnesium, which helps reduce blood pressure levels.[25] Moreover, to reduce blood pressure, adults should engage in exercise and physical activity.[26] The nine-square step exercise is a type of exercise that combines physical and cognitive training where individuals follow several step patterns, resulting in lower blood pressure.[27] Stress management is another lifestyle factor that aids in lowering blood pressure by lessening the tension and physiological arousal that the autonomic nervous system produces. Several stress management strategies have been proven useful in reducing blood pressure such as meditation, yoga, deep breathing, and tai chi.[26] In the Thai context, the Somporn Kantaradusdi-Triamchaisri[28] Technique (SKT) meditation therapy has been proposed as an alternative to blood pressure control by integrating meditation, yoga, qigong, stretching exercises, meditation with breathing techniques, and control of the senses, eyes, and ears. The SKT 1 "Sit and relax, coordinate body and mind" and the SKT 2 "Stand and relax, coordinate body and mind" are commonly practiced in research, yielding effectiveness in reducing blood pressure in adults with UHTN.[29,30]

In this study, the Self-Efficacy Health Promotion Program (SEHPP) was guided by the self-efficacy theory[31] and a literature review. Self-efficacy is the confidence in one's ability to carry out plans or complete tasks successfully and to take the required steps to achieve desired or expected results.[31] Self-efficacy increases through four sources.[31] Firstly, mastery experience involves achievements that bolster a strong sense of self-efficacy. It encompasses providing people with knowledge and skill training to perform healthy behavior. To develop self-efficacy in adults with UHTN, it is necessary to train them to have the skills to succeed in health behaviors while also making them aware that they can do so. Mastery experience can be fostered by providing knowledge, skill training, and demonstrations about exercise,[21] low-sodium diets, antihypertensive medication, and treatment adherence.[22] Secondly, vicarious experience is enhanced by social models, as witnessing someone who is comparable to oneself achieve success through perseverance increases the individuals' confidence in their own ability to excel in such endeavors. Adults with UHTN can share their personal experiences about healthcare with their peers or listen to others' experiences in successful hypertension management.[21,22] Thirdly, verbal persuasion involves convincing individuals that they can master particular tasks. Adults with UHTN can participate in counseling focusing on persuasive discussion on health behaviors.[21,22] Lastly, emotional arousal entails reducing unfavorable emotional inclinations, stress responses, and inaccurate perceptions of physical conditions, which lead to higher self-belief and tendency to perform a behavior.[31] In the social cognitive theory, self-efficacy is a crucial internal motivating factor.[32] Motivated behaviors are shaped by the expectation of favorable outcomes for carrying out modeled behaviors, known as outcome expectancy.[14] In this study, it was expected that self-efficacy helps adults with UHTN to be aware of their abilities, have knowledge, and awareness and perform appropriate health behaviors to control blood pressure.

Study Aim and Hypotheses

Our study aimed at investigating the SEHPP's effectiveness in improving health behaviors and blood pressure control in adults with UHTN in urban communities. We hypothesized that the experimental group would have higher scores of self-efficacy and health behaviors and lower blood pressure than the control group and prior to receiving the program.

Methods

Design: We adopted a two-group, pre-posttest, quasi-experimental design and reported the study in accordance with the checklist of Transparent Reporting of Evaluations with Non-randomized Designs (TREND).

Participants and Settings: Using G* Power Version 3.0, we calculated the sample size, considering a power of 0.80 and a significance threshold of 0.05, with a 0.60 effect size from a similar study.[33] This led to 24 participants. Following a 25% attrition rate adjustment,[34] the needed sample size was 60 participants in total, with 30 in each group.

Participants were adults with UHTN who lived in two urban communities in Bangkok, central Thailand. Both communities are located in the same district of Bangkok, with similar contexts in terms of population structure, culture, and urban society. They were purposively selected from a list of registered patients in the public health service center providing healthcare coverage for the communities, with the inclusion criteria: 1) age 35-59 years, 2) diagnosed with hypertension by a physician for more than 6 months; 3) blood pressure of ≥ 140/90 mmHg despite medication treatments, as recorded on any clinic visits within the last three months prior to recruitment; 4) being able to participate in activities throughout the study; 5) cognitively intact, no communication problems, 6) being able to read and write Thai; and 6) being Buddhist. Those who had comorbidities such as kidney failure and cerebrovascular disease or disabilities that would be obstacles to performing activities were excluded. Cluster randomization was performed to assign the participants in Community A to the experimental group and those in Community B to the control group. In Community A, 36 adults with UHTN were screened for eligibility, but four failed to meet the criteria, and two were unable to participate. In Community B, 34 adults with UHTN were screened for eligibility, but two failed to meet the criteria, and two were unable to participate. All 60 participants remained until the study's completion, and 30 participants from each group were included for analysis (**Figure 1**).

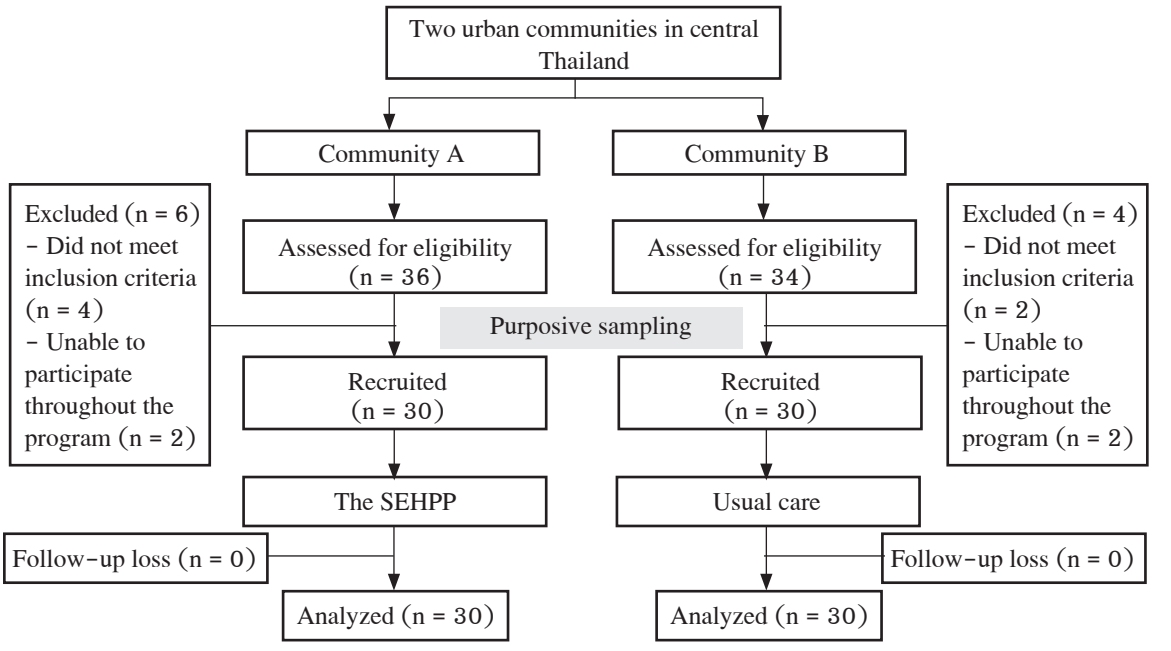

Figure 1. Participants' flow chart over the duration of the study

Ethical Considerations: Our study was approved by the Research Ethics Committee of Boromarajonani College of Nursing Nopparat Vajira (No. 12/2566, on 16 February 2024), and the participating communities gave permission for data collection. The participants received a thorough explanation of the study's objectives, rights, and possible risks. All participants gave a written consent. Anonymity was protected using codes instead of participants' names, and confidentiality was ensured by storing research data in a password-protected computer accessible only by the research team.

Research Instruments: Data were collected using three research instruments.

A Demographic and Health Information Questionnaire developed by the research team consists of age, gender, marital status, education, income, occupation, and duration of hypertension.

*The Self-Efficacy in Controlling Hypertension Questionnair*e, developed by Sanguansuk and Mekrungrongwong,[35] was used to assess self-efficacy with the authors' permission. It consists of 18 items (e.g., "You are confident you can reduce or avoid high-fat foods such as pork belly, pork leg rice, and fried foods"). It is answered on a 3-point Likert-like scale from 1 (Not confident at all) to 3 (Very confident). Total scores range between 18 and 54 (the higher score indicates the higher self-efficacy).[35] The content validity index (CVI) was 0.92.[35] Cronbach's alpha was 0.87 in a pilot sample of 30 adults with UHTN and 0.93 in the main study.

The Health Behavior for Controlling Hypertension Questionnaire, developed by Sittiwang et al.,[33] was used to evaluate health behaviors with the authors' permission. It consists of 30 questions in four domains of health behaviors in diet (11 items, e.g., "You eat food cooked by boiling, steaming, or stewing, such as boiled chicken, steamed fish, or steamed eggs"), exercise (eight items, e.g., "You do exercises that are appropriate for your health condition, such as running, brisk walking, aerobic exercise, or cycling"), management of stress (five items, e.g., "When you are stressed, you can relax by meditating, praying, listening to music, watching TV, or reading books"), and medication taking (six items, e.g., "You take your medications as prescribed by your doctor"). Participants answer on a 4-point Likert-like scale: 1 (Never practice) to 4 (Practice regularly). Items with negative wording are given a reverse score. The overall score falls between 40 and 120 (a higher score indicates higher health behaviors).[33] The CVI was 0.96.[33] Cronbach's alpha was 0.80 in a pilot sample of 30 adults with UHTN and 0.82 in the main study.

A mercury sphygmomanometer was used to measure blood pressure levels. It was calibrated by the public health service center.

The Self-Efficacy Health Promotion Program (SEHPP)

The SEHPP was developed based on the self-efficacy theory[31] with activities led by the principal investigator (PI) for self-efficacy enhancement via mastery experience, vicarious experience, emotional arousal, and verbal persuasion. There are seven weekly sessions over seven weeks, with sessions 1-2 conducted in groups at the meeting room of the public health service center and sessions 3-7 conducted individually at the participants' homes. The contents of the intervention were examined by a panel of three experts in hypertension and self-efficacy and revised accordingly. The activities for each session are summarized in **Appendix**, **Table A1**.

Usual Care

Usual care consisted of medications prescribed by the doctor, blood pressure monitoring, and advice on health behaviors to control blood pressure from the public health service center staff.

Data Collection: We collected data between February 2024 and June 2024. Following ethics approval, the PI screened and recruited the participants based on the inclusion criteria. The experimental group participants underwent the SEHPP in controlling hypertension, whereas the control group received only usual care. We employed a single-blind technique, so the participants were unaware of their group assignment.

The PI assessed the program outcomes, including self-efficacy, health behaviors, and blood pressure, before and four weeks after the program ended. A minimal resting period of 5 minutes was allowed before the PI measured blood pressure on one arm and recorded the reading.

Data Analysis: We analyzed demographic and health data with descriptive statistics (mean, standard deviation, frequency, and percentage) and compared them with the Chi-square test or Fisher's exact test and independent t-test. The independent t-test was used to compare the self-efficacy, health behaviors, and blood pressure scores between groups, and the paired t-test was used to compare the scores before and after the program. The Komogorov-Smirnov test was used to assess statistical assumptions for normality. It revealed a normal distribution of data.

Results

This study included 30 participants each in the experimental and control groups. Most participants in both groups were female, aged 55-59 years, and married. All were Buddhist, and most had high school and primary education. Most experimental group participants were merchants and unemployed, while most control group participants were general laborers and unemployed. Both groups earned a monthly income of under 9,000 Thai baht (257.29 USD) from employment, and most participants had a duration of hypertension of 1-5 years. The demographic and health characteristics of the groups did not differ significantly (**Table 1**).

Table 1. Demographic and health characteristics (N = 60)

Characteristics	Experimental group (n = 30)		Control group (n = 30)		p-value
	n	%	n	%	
Gender					0.028
Male	3	10.00	10	33.30	
Female	27	90.00	20	66.70	
Age (years)					0.409
40-44	1	3.30	2	6.70	
45-49	0	0	0	0	
50-54	9	30.00	6	20.00	
55-59	20	66.70	22	73.30	
Marital status					0.671
Single	3	10.00	6	20.00	
Married	18	60.00	15	50.00	
Widowed/widower	7	23.30	6	20.00	
Divorced/Separated	2	6.70	3	10.00	
Religion					
Buddhist	30	100	30	100	
Education					0.079
No formal education	0	0	1	3.30	
Primary	7	23.30	15	50.00	
Junior high school	4	13.30	6	20.00	
High school	12	40.00	6	20.00	
Associate degree	1	3.30	1	3.30	
Bachelor's degree	6	20.00	1	3.30	

Table 1. Demographic and health characteristics (N = 60) (Cont.)

Characteristics	Experimental group (n = 30)		Control group (n = 30)		p-value
	n	%	n	%	
Occupation					0.003
Unemployed	10	33.30	13	43.30	
General laborer	7	23.30	16	53.30	
Merchant	11	36.70	1	3.30	
Business owner	2	6.70	0	0	
Monthly income in Thai baht (USD)					0.649
< 9000 (257.29)	20	66.70	24	80.00	
≥ 9000 (257.29)	10	33.30	6	19.90	
Income source					0.864
Spouse	1	3.30	1	3.30	
Children/ grandchildren/ relatives	10	33.30	12	40.00	
Employment	19	63.30	17	56.70	
Duration of having hypertension (years)					0.370
< 1	9	30.00	5	16.70	
1-5	17	56.70	18	60.00	
> 5	4	13.30	7	23.30	

Within the group, the results of the paired t-test revealed statistically significant differences in the experimental group's self-efficacy scores, health behavior scores, and blood pressure between pre-test and post-test. The mean self-efficacy and health behavior scores at the post-test were higher than at the pre-test, whereas the blood pressure was lower. Conversely, the control group had no significant changes (**Table 2**).

Table 2. Comparison of self-efficacy scores, health behavior scores, and blood pressure levels between pre-test and post-test (N = 60)

Group	Pre-test		Post-test		t	p-value
	Mean	SD	Mean	SD		
Self-efficacy						
Experimental group (n = 30)	41.13	8.3	51.63	2.64	6.595	< 0.001
Control group (n = 30)	45.53	5.15	43.83	5.06	1.035	0.309
Health behaviors						
Experimental group (n = 30)	86.70	10.23	103.20	8.77	7.713	< 0.001
Control group (n = 30)	84.86	13.36	86.03	12.13	11.379	0.232
Blood pressure[a]						
Systolic blood pressure						
Experimental group (n = 30)	136.33	8.08	124.67	7.30	7.66	< 0.001
Control group (n = 30)	137.33	11.12	139.00	11.84	1.72	0.096
Diastolic blood pressure						
Experimental group (n = 30)	85.67	6.26	72.67	8.27	7.77	< 0.001
Control group (n = 30)	83.67	7.64	84.33	7.73	1.00	0.326

Note. [a] We recruited those with blood pressure of ≥140/90 mmHg despite medication treatments, as recorded on any clinic visits within the last three months prior to recruitment. However, despite being eligible at the recruitment, some participants might have blood pressure lower than 140/90 mmHg at pre-test.

Between-group comparison at pre-test and post-test was performed using an independent t-test. At pre-test, no significant difference in self-efficacy scores, health behavior scores, and blood pressure were found between the experimental group and the control group, but the experimental group had significantly higher self-efficacy and health behavior, and significantly lower blood pressure, both systolic and diastolic, than the control group at post-test (**Table 3**).

Table 3. Comparison of self-efficacy scores, health behavior scores, and blood pressure levels between the experimental and control groups (N = 60)

Variables	Experimental group (n = 30)		Control group (n = 30)		t	p-value
	Mean	SD	Mean	SD		
Self-efficacy						
Pre-test	41.13	8.30	44.53	5.13	1.906	0.063
Post-test	51.63	2.64	43.83	5.06	7.476	< 0.001
Health behavior						
Pre-test	86.70	10.23	84.86	13.36	0.597	0.553
Post-test	103.20	8.77	86.03	12.13	4.480	< 0.001
Blood pressure						
Pre-test						
Systolic blood pressure	136.33	8.08	137.33	11.12	0.398	0.692
Diastolic blood pressure	85.67	6.26	83.67	7.64	1.108	0.272
Post-test						
Systolic blood pressure	124.67	7.30	139.00	11.84	5.64	< 0.001
Diastolic blood pressure	72.67	8.27	84.33	7.73	5.63	< 0.001

Discussion

Our finding demonstrated the effectiveness of the SEHPP in improving self-efficacy and health behavior, as well as lower blood pressure among adults with UHTN in urban communities. These findings supported our research hypotheses. These results echoed the findings of other studies reporting that self-efficacy enhancement programs led to increased self-efficacy in the UHTN population.[21,22] The contents of the SEHPP enhanced self-efficacy by providing knowledge and skill training for hypertension control (mastery experience), presenting a role model who successfully performed health behaviors to control hypertension (vicarious experience), encouraging confidence in practicing hypertension control behavior (verbal persuasion) and creating a relaxing atmosphere to promote learning (emotional arousal). These strategies allowed participants to develop knowledge of hypertension and how to control it and feel less stressed, thereby gaining more confidence in their ability to carry out healthy behaviors to control hypertension. Moreover, the activities in our program were appropriate for the target population, which was urban dwellers in the Thai context. For example, the SKT1 and SKT2 meditation therapy was mainly developed based on the Buddhist concept of meditation,[28] and the nine-square exercise is characterized by the usage of small space for practice,[27] which is convenient for people living in urban communities with limited space. Interventions are more effective in improving self-efficacy for HTN when they are tailored to meet the specific needs of a particular target population.[16] Thus, more studies need to design interventions to suit the diverse needs of various populations. Nurses need to assess the context of adults with UHTN, particularly in relation to their community, to identify the resources or barriers that

may promote or hinder their confidence in performing health behaviors for hypertension control.

The participants receiving the SEHPP had significantly higher health behaviors, which aligns with other UHTN studies.[18,21,22] This could be explained by the health education and skill training for hypertension control, including a diet for hypertension (DASH diet), exercise for hypertension control, medication, and stress management. Knowledge is the foundation for adopting health behaviors. Individuals with hypertension who possess greater knowledge about their disease are more likely to feel more secure and driven to take part in health behaviors that improve their health.[36] Moreover, through SEHPP, the participants learned about the benefits of changing their health behaviors for blood pressure control and were trained to perform those health behaviors. This fostered their self-efficacy, encouraging intrinsic interest and drive to participate in health-related activities.[14] The confidence in one's capacity, along with the expectation of the outcomes from changing behaviors, motivates individuals to engage in a behavior.[32] In the hypertension context, people who have higher self-efficacy are better equipped to motivate themselves to practice hypertension self-care behaviors regularly and get beyond barriers, such as a lack of time or enthusiasm.[37] This motivation is significant for adults with UHTN in urban contexts who tend to experience job-related stress, adopt sedentary lifestyles, and eat junk food,[9] helping them to keep their health behaviors on the right track. Interestingly, we found an increase in the control group's health behaviors after the test. Usual care, involving hypertension education and advice on health behaviors, might have played a role in stimulating the control group to practice health behaviors. However, this increase was slight when compared with the experimental group. This emphasizes that nurses should implement strategies to boost self-efficacy through education and skill training that promote knowledge of health behaviors and increase positive beliefs in expected outcomes on hypertension control to motivate behavior change.

The change in health behavior resulted in significantly reduced systolic and diastolic blood pressure, consistent with previous research.[21,22] Besides training on adherence to antihypertensive medications that are essential to optimal blood pressure control,[4] the SEHPP participants received training on SKT1 and SKT2 meditation therapy, the DASH diet for hypertension, and nine-square exercise. This training led to the ability to perform health behaviors for hypertension control, including eating and exercise behavior, stress management behavior, and medication-taking behavior, which were effective in reducing blood pressure.[25-26,28-29] The DASH diet promotes the intake of low-sodium food, unsaturated oils, vegetables, fruits, and nuts known for their influence on lowering blood pressure and promoting healthy endothelium[26] that helps maintain vascular tone for blood pressure regulation and organ/tissue homeostasis.[38] Exercise directly impacts blood pressure by enhancing endothelial function, lowering oxidative stress, and acting as an anti-inflammatory agent.[26] In our study, nine-square is a form of dancing exercise that lowers blood pressure by increasing the sympathetic and parasympathetic nervous systems' excitability and coordination, which reduces blood pressure and heart rate.[39] Moreover, the participants practiced SKT 1, "Sit and relax, coordinate body and mind," and SKT 2, "Stand and relax, coordinate body and mind," in the morning and evening daily, which can slow down the function of baroreflex and sympathetic nervous system,[28] leading to reduced blood pressure.[28,30] Compared to usual care given to the control group that involved medication, blood pressure monitoring, and general advice on health behaviors to control blood pressure, the SEHPP offered urban adults with UHTN a selection of strategies that may better suit their needs, as evidence by the participants' report of ease and convenience in implementing SKT and nine-square exercise in daily life.

Although the findings showed significant improvement in the program outcomes, adults with UHTN may need a high dose of intervention to ensure sustained behavior changes in the long term, preferably

at least three months of intervention duration.[40] Promising innovative interventions, such as mHealth, are recommended for managing UHTN.

Limitations

The PI collected data and delivered the intervention, which could result in bias. The participants were adults with UHTN in urban communities, and changes in health behavior and blood pressure were measured four weeks after the program ended. This might lead to limitations in terms of reduced generalizability of findings to other populations and the lack of evidence to support the program's sustainability. More research is needed to implement the SEHPP in other contexts and test its effectiveness in the longer term. Moreover, outcome expectation was not explicitly addressed in the SEHPP, suggesting further studies should include it to ensure theory-informed implementation.

Conclusions and Implications for Nursing Practice

The SEHPP was helpful in promoting self-efficacy and health behavior, leading to lower blood pressure levels among adults with UHTN in urban communities. Although the SEHPP needs more research for testing and refinement, it offers nurses potential steps to help urban adults develop the confidence to adopt healthy behaviors to control their hypertension by designing strategies that consider the aspects of living in urban communities. Nurses can use the SEHPP's activities to address barriers to behaviors for hypertension control for urban adults, especially by recommending how to access healthy products and the choices of exercise that do not require much space.

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Appendix

Table A1. Contents of the SEHPP to enhance self-efficacy in controlling hypertension

Session/Week (Duration)	Self-efficacy component	Objectives	Activities
Session 1/ Week 1 (1.5 hours)	- Mastery experiences	- To improve knowledge of hypertension and health behaviors for hypertension control - To improve skills of health behaviors for hypertension control	- Provide education about hypertension and the principles of hypertension control, including diet (DASH diet), exercise for hypertension control, medication, and stress management - Demonstrate SKT1 and SKT2 meditation therapy, cooking healthy food for hypertension, and nine-square exercise
Session 2 / Week 2 (1.5 hours)	- Vicarious experiences - Emotional arousal	- To increase con confidence in health behaviors for hypertension control - To share helpful techniques for overcoming barriers to hypertension control - To monitor the progress of performing health behaviors for hypertension control	- Have participants listen to a role model who was an adult with hypertension in urban community to share his direct experience in hypertension control by changing health behaviors in terms of diet, exercise, and stress management and how he managed to overcome problems (e.g., the inaccessibility of healthy food, lack of time to cook/exercise, limited space, stress) - Create a relaxing atmosphere to promote learning and build confidence in performing activities - Encourage participants to continue health behaviors for hypertension control at home and record behavioral changes using a behavior record form that includes the health behaviors performed and reflection on barriers encountered
Sessions 3-7/ Weeks 3-7 (30 minutes)	- Mastery experiences - Verbal persuasion	- To promote the transfer of prior successful strategies into new behaviors - To address barriers to hypertension control in the participants' context - To encourage maintenance of health behaviors for hypertension control	Conduct a follow-up home visits to: 1. Have participants reflect on their progress in performing health behaviors for hypertension control, as recorded in the behavior record form 2. Provide advice on the barriers each participant recorded to address problems in hypertension control, such as the difficulty of locating healthy food in urban areas and how to exercise in limited space 3. Provide verbal reinforcement to maintain health behaviors for hypertension control

การส่งเสริมพฤติกรรมสุขภาพและการควบคุมความดันโลหิตผ่านโปรแกรมส่งเสริมสุขภาพสมรรถนะแห่งตนในผู้ใหญ่ความดันโลหิตสูงที่ควบคุมไม่ได้ : การวิจัยกึ่งทดลอง

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บทคัดย่อ: ความดันโลหิตสูงที่ควบคุมไม่ได้อาจส่งผลร้ายแรงต่อสุขภาพ การควบคุมความดันโลหิตต้องอาศัยพฤติกรรมสุขภาพที่เหมาะสม ซึ่งอาจเป็นเรื่องท้าทายสำหรับผู้ที่อาศัยอยู่ในชุมชนเมืองที่มีวิถีชีวิตที่ไม่เป็นผลดีต่อสุขภาพ สมรรถนะแห่งตนช่วยเพิ่มแรงจูงใจในการปฏิบัติกิจกรรมเพื่อสุขภาพ แต่โปรแกรมส่งเสริมสมรรถนะแห่งตนสำหรับผู้ใหญ่ความดันโลหิตสูงที่ควบคุมไม่ได้ในชุมชนเมืองในประเทศไทยยังมีจำกัด การวิจัยแบบกึ่งทดลองแบบสองกลุ่มวัดผลก่อนหลังนี้มีวัตถุประสงค์เพื่อศึกษาประสิทธิผลของโปรแกรมส่งเสริมสุขภาพสมรรถนะแห่งตนต่อพฤติกรรมสุขภาพและการควบคุมความดันโลหิตในผู้ใหญ่ความดันโลหิตสูงที่ควบคุมไม่ได้ในชุมชนเมือง ผู้เข้าร่วมวิจัยเป็นผู้ใหญ่ความดันโลหิตสูงที่ควบคุมไม่ได้จำนวน 60 คน คัดเลือกโดยการสุ่มแบบเฉพาะเจาะจงจากชุมชนเมืองสองแห่งในภาคกลางของประเทศไทย กลุ่มทดลอง (n = 30) เข้าร่วมโปรแกรมส่งเสริมสุขภาพสมรรถนะแห่งตน ในขณะที่กลุ่มควบคุม (n = 30) ได้รับการดูแลตามปกติ เก็บรวบรวมข้อมูลโดยใช้แบบสอบถามข้อมูลประชากรและสุขภาพ แบบสอบถามสมรรถนะแห่งตนในการควบคุมความดันโลหิตสูง แบบสอบถามพฤติกรรมสุขภาพในการควบคุมความดันโลหิตสูง และเครื่องวัดความดันโลหิตแบบปรอท วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา การทดสอบทีแบบอิสระ และการทดสอบทีแบบคู่

จากผลการศึกษา กลุ่มทดลองมีคะแนนสมรรถนะแห่งตน และคะแนนพฤติกรรมสุขภาพ สูงขึ้นและมีค่าความดันโลหิตลดลงทั้งซิสโทลิก ความดันโลหิตและไดแอสโทลิก เมื่อเทียบกับก่อนได้รับโปรแกรมและกลุ่มควบคุมอย่างมีนัยสำคัญ โปรแกรมส่งเสริมสุขภาพสมรรถนะแห่งตนเป็นกลยุทธ์ที่มีศักยภาพสำหรับพยาบาลชุมชนในการสร้างความมั่นใจให้กับผู้ใหญ่ในชุมชนเมืองในปฏิบัติพฤติกรรมสุขภาพที่เหมาะสมเพื่อควบคุมโรคความดันโลหิตสูง อย่างไรก็ตาม ควรมีการวิจัยเพิ่มเติมเพื่อทดสอบและปรับปรุงโปรแกรมดังกล่าวเพื่อให้สามารถนำไปบูรณาการกับการปฏิบัติทางคลินิกได้ดียิ่งขึ้น

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