Illness Perceptions, Lifestyle Behaviors, Social Support, and Cardiovascular Risks in People with Hypertension in Urban and Rural Areas of Thailand

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Abstract : While hypertension is the major health problem internationally, little is known about how Thais with hypertension, especially those living in urban and rural areas, perceive hypertension or behave in order to avoid cardiovascular risks and to keep their blood pressure under control. This study compared differences in perceptions of hypertension, lifestyle behaviors (diet, exercise, and medication-taking), social support, and cardiovascular risks in out-patient Thais with hypertension in urban and rural areas. A cross-sectional survey was conducted at four urban Bangkok Health Centers and at two primary care units in rural areas. A convenience sample of 660 participants, with 50% living in urban areas, was assessed by interview and chart review, and six instruments were used for assessment: the Brief Illness Perception Questionnaire, four scales related to eating, exercise, medication-taking, and social support, and a screening tool for cardiovascular risks. The mean scores of eating, exercise, and medication-taking behaviors, and brief illness perception subscales (except timeline) in urban areas were significantly higher than those in rural areas. There were no differences in mean scores in perceptions about the time of having hypertension (timeline), social support, and cardiovascular risks between these two groups. Our findings provide nurses and other health workers with a better understanding of hypertension perceptions, lifestyle, and medication-taking behaviors in Thais from both areas. These findings will help inform nurses in order to create practical strategies using meaningful information for hypertension and lifestyle modification.

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Introduction

Hypertension is a global major health problem contributing to cardiovascular risks, causing morbidity and mortality. Thailand has a health care policy to modify lifestyle behaviors and decrease cardiovascular risks for Thais diagnosed with hypertension in order to reduce hypertensive complications associated with heart diseases, stroke, and kidney disease.[1] In Thailand, hypertension has been reported in both

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urban and rural areas.[2] While it is known that lifestyle behaviors play an important role in the regulation of blood pressure,[3] the comparison of lifestyle behaviors compared between urban and rural areas has not been studied before in regard to how Thais think or behave to control their blood pressure. Importantly, understanding how Thais living in different locations, backgrounds, and cultures think or react to blood pressure elevation will help gain more and meaningful benefits and knowledge to help control blood pressure better. This study investigated whether there were differences of illness perceptions, lifestyle behaviors, social support, and cardiovascular risks between urban and rural Thais with hypertension.

Literature Review

Hypertension is a global health problem,[4] including in Thailand. While the prevalence of hypertension around the world is reported to be approximately 35%-40%,[4] the prevalence of hypertension in Asia, such as in China[5,6] and Thailand[2] is approximately 21% to 40.8%.[2,5] Despite the lower prevalence (21%) of hypertension[2] in Thais compared with the global rate, hypertension is still a serious public health problem[4] and needs urgent attention to decrease further elevation and avoid its complications. A large Thai study reported a significantly higher prevalence of hypertension in urban men (27.1%) compared to rural men (22.7%, p< .01); nevertheless, there was no difference in the prevalence of hypertension between urban (21%) and rural women (20%).[7] Additionally, findings showed that participants with prehypertension and hypertension had more cardiovascular risks, such as diabetes, high cholesterol, and obesity.[7] An earlier study also showed differences in the prevalence rate of cardiovascular risks in urban as opposed to rural Thais.[8] This provides clues that Thais living in different locations and backgrounds might think or behave differently. Thus, understanding and managing lifestyle behaviors in urban and rural areas in order to decrease elevated blood pressure (BP) and cardiovascular risks is necessary.

There is evidence that lifestyle behavioral changes such as taking antihypertensive medications regularly,[9] modifying lifestyle patterns,[10,11] and having social support[12] help people to prevent hypertensive complications and to keep their BP under control. However, little is known regarding how Thais perceive hypertension and follow treatment recommendations.[13] The illness representations or perceptions developed by Leventhal et al[14] help guide people to regulate themselves to adhere to antihypertensive medications and to control their BP. Simultaneously, social support (a part of socio-cultural context in the Common Sense Model) is thought to help Thais with hypertension adhere to anti-hypertensive medications[12] and improve BP control.[15]

Illness perceptions of hypertension: While there may be no clear symptoms of high BP, understanding how Thais perceive hypertension (their illness perceptions) is necessary because without this, treatment may not be appropriately tailored to their needs and belief systems. The definition of illness perceptions used here was developed by Leventhal et al[16] and comprises five attributes: symptoms (disease labels), causes (causes of internal or external threats), timeline (the duration of a disease or the period of using treatment regimens), consequences (the results of unpleasant effects), and control (the ability to manage illnesses/disease). The essence of this concept involves self-regulation. When a person is stimulated by a health threat, he or she will search for an appropriate way to solve it. A previous study reporting illness perceptions in Thai women[13] found that hypertension was considered permanent, rather than temporary. Those reporting more symptoms tended to have poor BP control and greater consequences from hypertension while those having higher education tended to have better control of their hypertension. Furthermore, the women perceiving a chronic timeline of hypertension tended

to have high consequences of hypertension. Another study[17] examining illness perceptions in 191 Portuguese patients diagnosed with hypertension aged ≥18 years reported their beliefs that hypertension had a chronic timeline and serious consequences. There was expression of great concern and negative emotions, despite strong personal beliefs, treatment controls, and good understanding of hypertension. While these two studies reported some similar findings, differences of hypertension perception in patients living in urban and rural areas were not examined.

Lifestyle behaviors: Although there is a paucity of Thai research describing lifestyle behaviors (e.g., dietary, exercise, and medication adherence) among patients with hypertension living in different locations, foreign research has provided information about lifestyle behaviors associated with hypertension. A Brazilian study[18] found predictive factors of sedentary lifestyle including physical deconditioning, low physical activity, and lack of physical exercise. Another study[19] reported that the awareness of hypertension, its related risk factors, consequences, and benefits of healthy eating and physical activity helped increase patients' hypertension knowledge level and blood pressure improvement. An Italian study[20] found that a lifestyle educational program significantly reduced total energy, fat, and sodium intake in patients with hypertension. In sum, lifestyle behavior research by location still needs to be explored.

Social support: Previous research has described relationships between social support and medication adherence or blood pressure control in patients with hypertension, for example, a significant relationship has been found between social support and medication-taking behavior in women with hypertension.[13] Another study[21] reported that social support helped encourage patients with hypertension to lower salt consumption, to take anti-hypertensive medications, and to support their environment at the clinic in order to control their blood pressure elevation. However, there are no available findings reporting whether there is a difference of social support between Thais with hypertension living in urban and rural areas.

Cardiovascular risks: A large research study reported cardiovascular risk factors[8] in 5,305 urban and rural Thais, using one representative from each household. The mean total cholesterol level in both sexes in urban Thais was significantly higher than that in rural areas. Diabetes was more common in urban than in rural people, but the estimated number of people aged ≥ 35 years with diabetes among rural Thais was greater than that in urban areas (1.5 vs 0.9 million). Another study reported similar results for total cholesterol (TC), showing that both men and women in urban areas (office workers) had significantly higher TC than rural dwellers (farmers or home workers).[22] However, no study has been conducted on the difference of cardiovascular risks between urban and rural Thais with hypertension.

While there has been some literature reporting some of the relationships between these study variables, no study examined and compared the relationship of these variables in Thais with hypertension living in different locations. Thus, this study aims to examine the differences of illness perceptions, lifestyle behaviors, social support, and cardiovascular risks between urban and rural Thais with hypertension.

Method

Design: This study was a descriptive and cross-sectional survey design.

Ethical considerations: Ethical approval was obtained from a government hospital and the Bangkok Metropolitan Administration, and research permission was allowed by the rural primary care units. Data were kept secure during the study, the confidentiality and privacy of participants was protected throughout, and informed consent was obtained.

Sample and Setting: A convenience sample was recruited from four Bangkok Health Centers (BHCs) for urban areas and two primary care units

for rural areas outside of Bangkok. According to Kline's recommendations[23], the desirable ratio of the number of cases to the number of free parameters was 20:1. Because there were 33 parameters in this study, the required sample size was 660. Of 666 potential participants approached, <1% refused to join the study, resulting in a potential study sample of 660 participants (50% living in urban areas). Participant inclusion criteria were as follows: Thai men or women aged ≥25 diagnosed with hypertension classified by the National Heart, Lung, and Blood Institute of 2003[24]; taking antihypertensive medication(s) for at least six months; ability to understand and communicate in Thai; and having no mental problems or serious physical complications that could interfere with an interview.

Instruments: A demographic form, developed by the principal investigator (PI), was used to collect information on age, education, income, body mass index (BMI), waist circumference, and BP.

The Brief Illness Perception Questionnaire (BIPQ): Permission to use this tool was given by the original developers [25] along with the permission to use the translated Thai version.[26] The BIPQ has 8 items and uses a 10-point rating scale (0= no effect, symptom, or concern on illness perception; 10= serious effect, most symptoms, or highest concern of illness perception). The higher the score, the greater the extent of the illness perception. Negative items regarding more symptoms, effects (consequences), or a negative illness perception of hypertension are reverse-scored. The range of scores is from 0 to 80. The followings are some examples of items: "How much does your illness affect your life?" and "How much do you experience symptoms from your illness?" The illness perception of cause was analyzed using percentages. When investigating the subscale for each component of illness perceptions specifically in this study, the test-retest reliabilities in the pilot test (n=30) were found to be .75 to .97.

Dietary Behavioral Scale (DBS): Permission was given by Villawat et al[27] to modify and use this scale. The Cronbach alpha of the original 30 items was .85.[28] However, only 14 relevant items with a 5-point Likert scale (0=not at all; 4=always) used in this study were from the Thai version of the DBS. Of 14 items, 11 negative statements are reverse scored. The range of scores is from 0 to 56. Examples of items are "You eat vegetables and fresh fruits" and "You buy food or a snack after reading the nutrition fact label." Due to a somewhat low Cronbach alpha of this adapted tool, the test-retest reliability of the pilot (n=30) of these 14 items was preferred and accepted (r= .86).

Exercise Behavioral Scale (EBS): Permission was given by Villawat et al[27] to use as well as to possibly modify this tool. It is composed of 10 items using a 5-point Likert scale (0=not at all; 4=always). However, only the nine most relevant items were used in this study. Of the nine statements, two negative statements are reverse-scored. The range of scores is from 0 to 36. Examples of items are: "You do not do any activity" and "You exercise extremely." The EBS is a sub-scale of the Preventive Diabetes Behavior Scale.[27] The alpha of the EBS from the tool developers' original raw data was .72. The Cronbach alpha of these nine relevant items for this study (n=660) was .71.

The Hill-Bone Compliance to High Blood Pressure Therapy Scale (HBC): This was gathered from the HiHi study[29] and permission was given to translate, modify, and use the tool. Only 10 relevant items were selected from 14 items, using a 4-point rating scale (1 = none of the time; 4 = all the time). Nine negative statements are reverse-scored. The range of scores is from 10 to 40. An item example is "How often do you make your next appointment before you leave the doctor's office?" Previous studies showed acceptable Cronbach alpha reliabilities, r= .68-.77.[30, 31] The alpha (.64) of the modified version for the present study was considered acceptable. The

original tool written in English underwent a translation and back-translation process (English to Thai to English) by the (PI) and a bilingual person to ensure its suitability for use in Thailand. The English and Thai versions were compared to avoid discrepancy and ensure accuracy.

The Social Support Scale (SSS): This scale was developed by Toljamo and Hentinen.[32] Permission to use and translate this tool with the minor adaptation of changing the word "diabetes" to "hypertension" was given. This study used 12 items of the translated Thai version with a 5-point Likert scale (1= strongly disagree; 5= strongly agree) from the primer study by Leelacharas.[13] The range of scores is from 12 to 60. Two negative statements are reverse-scored: "My family and friends are overprotective towards me" and "Doctors and nurses interfere too much in my care." The alphas for this tool in previous and current studies were .75 and .72, respectively. The details, steps, and methods of translation and back-translation of this tool are available elsewhere.[13]

Finally, the ***cardiovascular risk*** was measured using seven of nine cardiovascular risk factors, including hypertension (HTN), obesity (body mass index: BMI ≥ 30 kg/m^2), dyslipidemia (DLP), diabetes mellitus (DM), physical inactivity, cigarette smoking, and age >55 for men and age > 65 for women, as outlined in the 7th Report of the Joint National Committee on Prevention, Detection, and Evaluation, and Treatment of High Blood Pressure (JNC7).[33] HTN, DLP, and DM statements derived from three of nine items of chronic diseases with a dichotomous scale (1= yes; 2= no) were developed in the HiHi study[29], and other cardiovascular risk factors, BMI (BMI ≥ 30 kg/m^2), physical inactivity (exercise for at least 20-45 minutes and >3 days a week vs less than this), smoking (smoking vs not smoking), and age (>55 years for men and >65 for women) also use a dichotomous scale (1=yes; 2= no). The range of this scale is from 7 to 14. Examples of items are "Have you ever smoked?" and "Has your doctor or a nurse ever told you that you have or have had hypertension?" The content validity index of the tool for this study was .86.

These six instruments were used, and the total mean scores of items for all of these were calculated for urban and rural Thais by totaling the response scores of each item across respondents.

Procedure: The PI and three trained research assistants contacted nurses at the BHCs and primary care units to identify potential participants. After signing the informed consent form, each participant was invited to a private area to sit in a comfortable position for at least 10 minutes before having their BP measured twice with a 5-minute rest in between, using a calibrated automatic BP monitor. The average of the two measurements was recorded. Participants then were interviewed with self-reported questionnaires for ~30 minutes.

Data Analysis: The differences of mean scores of BIPQ, dietary behavior, exercise, medication-taking behavior, social support, and cardiovascular risk in both areas were compared using an independent t-test. Illness perception of cause, cardiovascular risks specific to diabetes and hyperlipidemia, and educational and income levels in urban and rural areas were compared, using a χ^2 test.

Results

The majority of participants were females (n=480; 72.7%) with an average age of 64.7 years. Most (n=419; 63.5%) had a grade 4 education, were Buddhists (n=645; 97.7%), and had been married (n=389; 58.9%).There were significant differences of educational and income levels and areas of living (see **Table 1**). More than 93% of participants reported having enough finances to purchase antihypertensive medications and pay for traveling expenses of medical visits. There was no difference in mean BMI scores between urban and rural Thais, but the mean waist circumference scores and systolic and diastolic

BPs were significantly lower in urban Thais than in rural Thais. Although the majority of participants cooked food for themselves, urban Thais tended to cook food less often than those living in rural areas. The majority of participants were non/ex-smokers (n=626; 94.8%) and non/ex-drinkers (n=641; 97.1%). Additional information of characteristics and selected variables between urban and rural Thais with hypertension is shown in **Table 2.**

Table 1. Relationships of Characteristics (Educational and Income Levels) and Thais with Hypertension in Area of Dwelling

Characteristics	Area of Dwelling		χ^2	df	p
	Urban	Rural			
Educational level:					
No education though lower than grade 4	19	57	101.18	2	.000
% within area	5.76	17.27			
Grade 4 through Grade 6	285	165			
% within area	86.36	50			
Grade 6 though to highest	26	108			
% within area	7.88	32.73			
Income level:					
No monthly income	15	30	67.85	3	.000
% within area	4.55	9.09			
Lower than <5,000 baht	210	117			
% within area	63.64	35.45			
5,001 to 10,000 baht	94	125			
% within area	28.48	37.88			
10,001 baht and higher	11	58			
% within area	3.33	17.58			

Table 2. Characteristics and Selected Variables of Urban and Rural Thais with Hypertension

Variables	Urban Thais		Rural Thais		t	p
	Mean (SD)		Mean (SD)			
Characteristic:						
Age	n=330	64.21 (10.03)	n=330	65.24 (10.11)	-1.31	ns
BMI	n=328§	25.83 (4.43)	n=328§	25.65 (5.25)	.48	ns
Waist	n=329§	88.42 (10.42)	n=328§	91.67 (12.38)	-3.64	.000
Mean systolic BP	n=330	133.57 (15.28)	n=330	139.21 (21.90)	-3.83	.000
Mean diastolic BP	n=330	77.45 (10.02)	n=330	79.37 (12.03)	-2.23	.026
Selected variable:						
BIPQ:						
1. Timeline	n=330	7.82 (3.26)	n=329§	7.76 (3.20)	0.26	ns
2. Consequences	n=330	9.20 (1.82)	n=330	7.23 (3.19)	9.71	.000

Table 2. Characteristics and Selected Variables of Urban and Rural Thais with Hypertension (Cont'd)

Variables		Urban Thais		Rural Thais	t	p
		Mean (SD)		Mean (SD)		
3. Personal control	n=330	9.28 (1.49)	n=330	8.16 (2.42)	6.91	.000
4. Treatment control	n=330	9.28 (2.37)	n=330	8.85 (1.77)	2.64	.008
5. Symptoms	n=330	9.73 (1.26)	n=330	7.41 (3.19)	12.28	.000
6. Concern	n=330	9.31 (1.97)	n=330	7.52 (3.06)	8.96	.000
7. Understanding	n=330	9.42 (1.90)	n=330	6.31 (3.32)	14.79	.000
8. Emotions	n=330	9.52 (1.59)	n=330	7.21 (3.27)	11.53	.000
Lifestyle behavior:						
1. DBS	n =330	2.74 (0.34)	n=330	2.68 (0.38)	2.13	.034
2. EBS	n =330	2.48 (0.65)	n=330	2.37 (0.82)	2.01	.045
3. HBC scale	n =330	2.78 (0.21)	n=330	2.71 (0.31)	3.11	.002
Social support	n =330	4.01 (0.40)	n=330	3.96 (0.51)	1.32	ns
Total cardiovascular risk	n =330	10.02 (1.21)	n=330	10.08 (1.24)	-0.606	ns
Level of education	n =330	Mode= Grade 4	n=330	Mode= Grade 4		

Note. n= 330 for each group of urban and rural hypertensive Thais; BMI= body mass index; BP= blood pressure; DBS= dietary behavioral scale; EBS= exercise behavioral scale; HBC= Hill-Bone Compliance to High Blood Pressure Therapy Scale; Level of education represented with "Mode" instead of "Mean"; §= missing data

When compared with their rural counterparts, urban participants had significantly higher mean scores on most subscales of the BIPQ except on the subscale of timeline. Additionally, those living in urban areas reported fewer consequences (higher scores) of hypertension, better personal and treatment controls of hypertension, better comprehensibility of hypertension, and fewer symptoms, concerns, and emotions regarding hypertension than those living in rural areas. However, there was no difference of illness perception of timeline between the areas. In terms of illness perception of cause, 45.8% reported "do not know" when asked what causes hypertension. Approximately 19% stated that a combination of factors (e.g., eating salty food and sedentary behavior) causes hypertension and 14% reported "Stress causes hypertension." There was a different proportion of participants reporting "do not know" vs "know" regarding cause of hypertension ($\chi^2(1, N= 660) = 6.25$, $p< .05$) between urban and rural areas. Urban participants had significantly higher total mean scores of eating behavior, exercise, and medication-taking behavior than those in rural areas. However, there were no differences of total mean scores of social support and cardiovascular risk. The proportion of diabetes was marginally significantly different (p=.046) while the proportion of those with high cholesterol was not different for those living in both areas.

As revealed in the raw data, the ability to control systolic and diastolic BP levels (lower than 140/90 mmHg), urban Thais had significantly better control (Mean=.64, SD =.48) in both BP levels than those living in rural areas [(Mean=.54, SD =.50), t= 2.7, p<.01].

Discussion

In this study, most participants were older females because the proportion of females (72.7%) recruited in the rural areas was higher than that of

males (27.3%). Although the overall educational level was grade 4, the proportion of those with a higher educational level in urban Thais was greater, and they had better systolic and diastolic BPs than rural Thais (Table1).This supports a previous study[13] showing the higher educational level and better control of BP among urban Thais. Although the proportion of both types of dwellers' monthly incomes varied, they had no financial difficulty purchasing medications because all Thai citizens receive free basic health care.[34]

The majority of participants had taken antihypertensive medications for more than five years. There were no differences in perceiving "timeline" for hypertension between both areas and they tended to be permanent rather than temporary. These findings were similar to the previous study.[13] Compared to rural participants, urban participants reported better personal and treatment controls of hypertension, better comprehensibility of hypertension, fewer symptoms (higher score), consequences (higher score), and concerns of hypertension (higher score). This is consistent with previous literature,[13] reporting that hypertension often shows no symptoms. When looking at the illness perception of cause, some participants reported that stress was a cause of hypertension. This could be interpreted to be that they transform their perception of hypertension and interact with their stress, resulting in reporting more negative illness perceptions. Some findings of this study are consistent with previous research[35] showing that older persons tended to season food when having meals. Overall, although dietary behavior in urban Thais was better than that in rural Thais, improving dietary behavior in both areas should be further recommended, especially for the majority in this study cooking food for themselves. When looking at sub-items of the DBS, rural Thais need to avoid fried food or food mixed with coconut, fermented food, desserts or food with high sugar, salty food, food with added monosodium glutamate, and food with fish or soy sauce seasoning. However, urban Thais should avoid eating fast-food, sausage or fermented pork, and ordered food or readily cooked food. Although our study findings show that overall exercise behavior in urban Thais is better than that in rural areas, the statistical significance is marginal and this should be interpreted with caution. Furthermore, when looking at the sub-item analysis, many (44%) reported exercising at least three times per week for 20-45 minutes and more than half of them had no or little sweat. This is not consistent with a previous study[36] showing that less than 10% of older persons exercised. This finding is possible because there was no distinction between physical exercise and physical activities, while it was differentiated in a previous study.[36] Even though urban Thais reported higher medication-taking compared to rural Thais, encouragement of regularly taking antihypertensive medication is necessary. In the sub-items of the HBC Scale, there were reported behaviors of forgetting to take pills, deciding not to take medications, running out of and skipping pills, and taking someone else's pills. Thus, exploring strategies to improve medication-taking behavior is needed.

There was no difference in social support in both areas of this study, possibly because the majority of participants managed their medication-taking by themselves. However, when considering some sub-items of social support, rural Thais reported their need of having more social support, such as family or friends, when feeling bored or depressed, as well as needing to receive information from health care providers. We found no differences in cardiovascular risks in urban and rural areas. This is possible because the given definition of cardiovascular risks and the tools used in this study were different from other studies.

Limitations and Recommendations

In this study, most Thais with hypertension were older persons (~65years of age); thus, younger Thais with hypertension were not well represented.

The convenience sample used in this study may have limited the representativeness of the individuals studied. Some subscales of the dietary behavior scale might not be useful for examining rural Thais with hypertension despite the high test-retest reliability. A modified version of the dietary behavior scale for chronically ill populations is recommended for future studies. Exercise in this study included physical exercise and activities, making it difficult to distinguish either type of exercise. A further version of the modified EBS might be considered.

Conclusions and Nursing Implications

This study investigated differences of demographic data, illness perceptions of hypertension, lifestyle behaviors, social support, and cardiovascular risks in urban and rural Thais with hypertension. Rural Thais had different illness perceptions of hypertension compared with urban Thais and needed more knowledge of hypertension and health advice in order to better control their BP. Rural Thais should be encouraged to pay more attention to and learn to understand hypertension. However, more research studies are required to gain a clearer picture of the issues involved. While nursing practice and research in rural areas is still scanty, nurse practitioners in such areas of Thailand are encouraged to conduct nursing research as well as to give meaningful information about hypertension, assess and recognize peoples' illness perceptions, improve lifestyle modifications, and decrease cardiovascular risks in rural areas.

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การรับรู้ความเจ็บป่วย พฤติกรรมการดำเนินชีวิต แรงสนับสนุนทางสังคม และปัจจัยเสี่ยงโรคหัวใจและหลอดเลือดในผู้มีภาวะความดันโลหิตสูงในเขตเมืองและเขตชนบทของประเทศไทย

สิริรัตน์ ลีลาจรัส เพชรรัตน์ เกิดดอนแฝก จิราพร ชลธิชาชลาลักษณ์ วรรณา สนองเดช

บทคัดย่อ: ในขณะที่ความดันโลหิตสูงเป็นปัญหาสุขภาพในระดับนานาชาติ การรับรู้ของผู้มีภาวะความดันโลหิตสูงหรือพฤติกรรมต่าง ๆ ที่จะช่วยลดปัจจัยเสี่ยงโรคหัวใจและหลอดเลือดและความสามารถในการควบคุมความดันโลหิตสูงยังขาดการศึกษาวิจัย โดยเฉพาะผู้ที่อาศัยอยู่ในเขตเมืองและเขตชนบท การศึกษานี้เปรียบเทียบความแตกต่างของการรับรู้ภาวะความดันโลหิตสูง พฤติกรรมการดำเนินชีวิต (อาหาร การออกกำลังกาย และการรับประทานยา) แรงสนับสนุนทางสังคม และปัจจัยเสี่ยงโรคหัวใจและหลอดเลือดในคนไทยที่มีภาวะความดันโลหิตสูงที่อาศัยอยู่ในเขตเมืองและเขตชนบท โดยการสำรวจวิจัย ภาคตัดขวางซึ่งเก็บข้อมูลในผู้ป่วยนอก ณ ศูนย์บริการสาธารณสุขกรุงเทพมหานคร 4 แห่ง และหน่วยตรวจปฐมภูมิในเขตชนบท 2 แห่งกลุ่มตัวอย่างจำนวน 660 ราย (ร้อยละ 50 อาศัยอยู่ในเขตเมือง) ได้รับการประเมินข้อมูลจากเวชระเบียนและการสัมภาษณ์ด้วยแบบสอบถามเชิงโครงสร้าง ซึ่งมีเครื่องมือแบบสอบถาม 6 ชุดได้แก่ แบบสอบถามการรับรู้ความเจ็บป่วยแบบย่อ แบบสอบถามเรื่องการรับประทานอาหาร การออกกำลังกาย การรับประทานยา แรงสนับสนุนทางสังคม และแบบประเมินปัจจัยเสี่ยงโรคหัวใจและหลอดเลือดผลการวิจัยพบว่า ค่าคะแนนเฉลี่ยการรับประทานอาหาร การออกกำลังกาย การรับประทานยาและการรับรู้ความเจ็บป่วยของผู้มีภาวะความดันโลหิตสูงที่อาศัยอยู่ในเขตเมืองมีค่าสูงกว่าค่าคะแนนเฉลี่ยของผู้มีภาวะความดันโลหิตสูงที่อาศัยอยู่ในเขตชนบทอย่างมีนัยสำคัญทางสถิติ ค่าคะแนนเฉลี่ยของการรับรู้ความดันโลหิตสูงในเรื่องของช่วงเวลาแรงสนับสนุนทางสังคม และปัจจัยเสี่ยงโรคหัวใจและหลอดเลือดของผู้มีภาวะความดันโลหิตสูงทั้งในเขตเมืองและเขตชนบทไม่แตกต่างกัน การศึกษาวิจัยครั้งนี้ช่วยให้พยาบาลและบุคลากรด้านสุขภาพเข้าใจการรับรู้ความดันโลหิตสูง พฤติกรรมการดำเนินชีวิต และการรับประทานยาของคนไทยที่เป็นความดันโลหิตสูงทั้งในเขตเมืองและเขตชนบทได้ดีขึ้น ซึ่งจะช่วยพยาบาลในการค้นหากลยุทธ์และให้ข้อมูลเกี่ยวกับความดันโลหิตสูงอย่างมีความหมายร่วมกับการปรับเปลี่ยนพฤติกรรมการดำเนินชีวิต

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