Health-promoting Behaviors among Urban and Rural Older Thai Adults with Hypertension: A Cross-sectional Study

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Abstract: Health-promoting behaviors are beneficial for enhancing the older adults' health, and several factors such as individual, culture, and social factors influence them. Previous studies have shown that their place of residence is associated with healthy lifestyles of older adults; however, the results are inconsistent. This study aimed to 1) compare health-promoting behaviors among urban and rural older Thai adults with hypertension, and 2) determine the predictability of individual characteristics (age, income, perceived health status), and perceived self-efficacy on their health-promoting behaviors. A cross-sectional survey was conducted among 420 older adults using a demographic questionnaire, the Self-Rated Abilities Scale for Health Practice, and the Health Promoting Lifestyle Profile II. Data analysis used descriptive statistics, Pearson's correlation, and hierarchical regression analysis.

Results indicated that older adults in urban districts had higher perceived self-efficacy and health-promoting behaviors than those in rural locations. Perceived self-efficacy and income were predictors of health-promoting behaviors, accounting for 45.4% of the variance. Nurses can use these findings to develop health interventions aimed at increasing perceived self-efficacy through nursing support. Providing health education to improve older adults' self-confidence, reduce anxiety and distress may enhance their healthy lifestyle behaviors, particularly those with low income in rural areas who may require more support.

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Introduction

The number of older individuals is dramatically increasing worldwide due to increased longevity and improved healthcare.[1] The World Health Organization has reported that the proportion of the world's population aged ≥ 60 years was 12% of the total population in 2015 and will nearly double to 22% in 2050.[2] Since 2005, Thailand has become an ageing society, which means that 10% of the population is comprised of older adults (aged 60 years and over). The percentage

of older adults has steadily risen from approximately 13.2% in 2010 to 17.45% in 2019 and is predicted to increase to 32.1% by 2040.[3,4] Raised blood pressure is a cause of over 17.9 million deaths per year globally and contributes to other disease burdens, which impose severe financial and service loads on public health systems.[2]

Hypertension has become more common with advancing age, with nearly two-thirds (63.1%) of older adults in the United States presenting with uncontrolled hypertension.[5] In Thailand, a national survey has found the hypertension prevalence of older adults to be 48.5%, but this increased to over 60% among the oldest adults aged ≥ 80 years.[6] For cardiovascular diseases, hypertension is causally associated with higher mortality (23%).[2] Many factors are associated with uncontrolled hypertension among older Thai people, including age, sex, residential areas, comorbidity, and hypertension duration.[7] In particular, unhealthy lifestyles, such as a lack of physical activity, poor diet control, and lower medication adherence, are still a substantial issue in this age group.[8-10]

Health-promoting behaviors (HPBs) are recommended for people with hypertension as a particularly useful strategy for controlling blood pressure, and actively encourage a sense of well-being lead to enhance the quality of life.[11] As an example of promoting HPBs, the Thai Government has established elderly clubs across the country to promote healthy activities (e.g., local wisdom transfer, religious practices, and cultural events) for older adults.[12] These clubs enable older adults to join social activities and events, increasing social interaction and well-being in their communities.[13] In Thailand, prior studies have revealed that HPBs can be influenced by a residential area, demonstrating that older adults' quality of life differs between urban and rural areas.[14, 15] However, little is known about how HPBs among older Thai adults with hypertension differ between residential areas; thus, a comparative analysis of urban and rural contexts is required.[15, 16]

Conceptual Framework and Literature Review

HPBs are a likely influence on individual health and have been described by Pender within her health promotion model (HPM),[17] which was used to guide this study. This model focuses on several factors influencing health behaviors that motivate a person to engage in HPBs directed toward enhancing their health. The HPM contains three areas: individual characteristics (personal factors), behavior-specific cognitions and affect (perception of self-efficacy and situation influences), and behavioral outcomes. HPBs includes six key components: health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. Hence, the use of Pender's model is considered as an important means to determine health status, prevent diseases, and improve the health of societies and individuals throughout their lives.

Individual characteristics involve personal factors (e.g., age, gender, income, marital status, education, perceived health status) that are associated with health behavior.[18] Females tend to perform substantially more HPBs than males, and younger people also conduct more HPBs due to their increased functional ability and lower comorbidity.[19] Older adults who have achieved a higher level of education are more knowledgeable of their health practices and, therefore, are more likely to seek information about their health compared to less-educated older adults.[20]

Perceived self-efficacy (PSE) is defined as a self-confident perception of one's capability to carry out behaviors and plays a key role for people who have adopted a healthy lifestyle due to a belief in their abilities to achieve healthy practices. Earlier findings confirm that higher self-efficacy leads to improvements in HPBs.[20, 21] Older adults with hypertension who had high self-efficacy and self-confidence more efficiently perform self-care behaviors to control their blood

pressure.[22] Furthermore, older adults living in urban areas were more likely to have poor perceived health status than those in rural areas.[23]

Pender and colleagues demonstrated that the area of residence is one environmental factor that can affect a person's HPBs.[17] That is, persons may perform better on HPBs when they perceive they are in compatible and confident environmental contexts. Living in rural or urban areas may affect healthy lifestyles and the social well-being of older adults.[16, 24] Modern lifestyles in urban areas, such as consumption of an unhealthy diet and physical inactivity contribute to the rising prevalence of hypertension.[22] Lim et al.[21] showed that urban older Korean adults had lower HPBs than those in rural areas. However, some studies have demonstrated that older adults in rural communities can have limited access to healthcare services, economic instability, social isolation, reduced mobility, loneliness, and lack of adequate support.[25] Also, a lack of knowledge about hypertension among rural seniors has demonstrated poor responsibility in healthy self-care practice.[9]

Promoting healthy behaviors refers to activities that are engaged in to control health problems. These behaviors reduce the prevalence of chronic diseases and related conditions, and they increase functionality to improve life quality in later life.[26] Other studies regarding HPBs indicate that many older adults with hypertension are physically inactive, have an unhealthy diet, and lack responsibility for their healthcare, all of which lead to poor control of hypertension.[9, 27]

Pender's HPM was used as a conceptual framework to address the following research questions: Do PSE and HPBs differ among older adults with hypertension living in urban and rural areas in Thailand? What are the predictability factors of HPBs of older adults with hypertension living in urban and rural areas in Thailand? Therefore, this study aimed to compare PSE and HPBs among urban and rural older Thai adults with hypertension and determine the predictability of individual characteristics (age, income, perceived health status), and PSE on HPBs among older adults with hypertension in Thailand. A better understanding of these factors regarding whether they affect HPBs and each other is necessary to develop and implement interventions to maximize older people's health and well-being in various residential areas, particularly if differences exist.

Methods

Design: A descriptive, cross-sectional, comparative design was used.

Sample and Setting: The study was conducted at elderly clubs in one province of Eastern Thailand, where there are 1,624,139 inhabitants, and of whom approximately 112,000 are older adults with hypertension. This province has the highest hypertension prevalence in the country at approximately 1,400 per 100,000 people, especially in older adults.[28] A suitable sample size for statistical analysis was determined using G*Power software version 3.1.9.4. The effect size from a prior study was 0.31,[29] with an alpha level of .05 with a power of .80. A total of 370 prospective participants was accepted, and approximately 13% was added in case of incomplete questionnaires. Thus, the final sample was 420 older participants (297 urban and 123 rural) who met the inclusion criteria and were willing to participate in the present study.

Multi-stage random sampling design was used to select this study's sample. In the first stage, due to the community characteristics of the province, all 11 districts were classified into urban and rural areas. As a consequence, there were seven districts included in the study (four other districts are suburban areas, which were excluded from this study). In the second stage, the seven districts were divided into two groups by classifying the residential areas: urban refers to inside municipalities with a population density of more than 200 people per square kilometer, whereas rural is indicative of being outside of the municipalities with a population density of 200 or less.[30] In total, 52 sub-districts were included in the second stage.

After this, 12 sub-districts where the elderly clubs were located were randomly selected. In the final step, there were eight elderly clubs in urban areas, and four in rural areas. Older people who registered as a member of the clubs were randomly selected and invited to participate in the study. The sample proportion in each district from urban and rural (70:30) areas was calculated considering the older population in each district and the total older population. Inclusion criteria for the study were adults aged ≥ 60 years and participating in elderly club activities, diagnosed with hypertension, using anti-hypertensive medication, having no medical complications or cognitive impairment based on the Mini-Mental State Examination-Thai 2002 (MMSE-T2002). Participants were excluded if they were assessed as at risk of cognitive impairment by the MMSE-T2002, and if they demonstrated any symptoms of a hypertensive crisis (e.g., severe headache, dizziness, blurred vision, nausea, and vomiting).

Ethical Considerations: This study was approved by the Research Ethics Committee of the University of Eastern Finland (Statement 16/2018), and permissions were obtained from all sub-district health promotion hospitals responsible for the elderly clubs. The older adults were informed that participation in this study was voluntary, they could withdraw at any time without identifying a reason and without effecting any consequences. Written informed consent of participants had to be given prior to participation.

Research instruments: The questionnaire had three parts for collecting the data:

1. *The sociodemographic data* included questions regarding the following individual characteristics of participants: gender, age, living arrangement, education, occupation, marital status, income, residential area (urban, rural), duration of hypertension, presence of comorbidity, perceived health status, smoking, and drinking.

2. *Self-Rated Abilities Scale for Health Practice* (SRAHP) was originally developed by Becker et al.[31] for measuring self-efficacy. The English version of SRAHP was translated to Thai by an expert native in Thai and fluent in English. A back-translation from Thai to English was performed by a professional translator at the Research Institute for Languages in Thailand. The content validity of the questionnaire was assessed by five expert health professionals in elderly care in Thailand. The content validity index (CVI) was calculated and showed that the CVI values of the items (I-CVI) ranged from 0.80 to 1.00, and the overall scale (S-CVI) value was 0.98. This 28-item questionnaire comprises four dimensions: nutrition, well-being, exercise, and health practice. Each dimension has seven items such as, "Figure out how much I should weight to be healthy?". The items are rated on a 5-point Likert scale from 0 = *not at all* to 4 = *completely*. Total possible scores range from 0 to 112, with higher scores indicating higher PSE. The raw scores are divided into three categories of a PSE score: 0-37 (low), 38-74 (moderate), and 75-112 (high). The SRAHP measure has been used widely, including with older adults.[20] In the present study, Cronbach's alpha coefficient for the entire scale was 0.96, and for each subscale, this value was between .86 and .92.

3. *Health Promoting Lifestyle Profile II (HPLP-II)* was originally developed by Walker et al.[32] and has been used widely for measuring HPBs. The HPBs in the Thai version were translated by Sriyuktasuth.[33] The HPLP-II is a 52-item questionnaire and contains six subscales: health responsibility (9 items), physical activity (8 items), nutrition (9 items), spiritual growth (9 items), interpersonal relations (9 items), and stress management (8 items). An example of one item from this profile is,"Report any unusual signs or symptoms to a physician or other health professional." Responses are given on a 4-point Likert scale ranging from 1 = *never* to 4 = *routinely*. Possible transformed scores range from 52-208, with higher scores representing better HPBs. The HPBs are classified into three levels of frequency: 52-104 = inappropriate, 105-156= intermediate, and 157-208 = appropriate.[18] In the present study, Cronbach's alpha coefficient for the entire scale was .96, ranging for each subscale from .75 to .89.

A pilot study was conducted with 30 older adults to determine the SRAHP and HPLP-II instruments' reliability and validity, showing a good internal consistency, alpha being .90 and .91, respectively. The items were carefully assessed, and minor rewording was conducted to make them easy to understand.

Data collection: was undertaken from October 2018 to March 2019. First, the primary investigator (PI) collaborated with the contact nurses in the sub-district health promoting hospitals to explain the study purpose and processes and provide an information sheet. They then helped to coordinate the identification of potential participants by informing older adults who met the inclusion criteria. Once participants joined the study the PI read aloud each item of the questionnaires to the participants, who independently rated the items. Approximately 45 minutes were required for this task.

Data Analysis: To describe the individual characteristics, PSE, and HPBs were analyzed using descriptive statistics. The chi-square test was used to test the difference of the individual characteristics between the older adults who lived in urban and rural areas. The independent t-test was performed to compare the differences between residential areas in PSE and HPBs. The relationship between variables was examined using Pearson's correlation. Assumptions of normality, linearity, multicollinearity, and autocorrelation were accepted for regression analysis. Hierarchical regression analysis was performed to determine the predictability factors of HPBs. Categorical variables were dummy coded as follows: income (0 = ≤ 5000 baht/month, 1= > 5000 baht/month (around 158 USD), and perceived health status (0 = poor, 1 = not poor (indicating fair and good); The p-value < .05 was considered statistically significant. Data were analyzed using IBM SPSS Statistics for Windows (Version 25.0. Armonk, NY: IBM Corp.).

Results

Participants' characteristics

The average age was 70.18 years, and the majority were female (81.9%), and 69.3% lived with a family member. Two-thirds (66.2%) had a primary school education, 61.0% were homemakers, and 47.4% were married. Most participants had a monthly income of <1,000 baht or <31.61 USD (41.0%). The mean duration of having hypertension was 7.03 years, and most experienced comorbidity was hyperlipidemia (37.4%). Perceived health status at fair and good levels were 47.6% and 44.5%, respectively. Most participants 96.2% did not smoke, and 92.9% did not drink alcohol. Occupation and drinking status were significantly different between the older adults who lived in urban and rural areas; other variables were not significantly between the two groups (**Table 1**).

Table 1 Participants' characteristics (N = 420) in urban (n= 297) and rural (n=123) areas

Characteristics	Urban		Rural		Total		P value
	n	%	n	%	n	%	
Personal factors							0.83
Sex							
Female	244	82.2	100	81.3	344	81.9	
Male	53	17.8	23	18.7	76	18.1	
Age (M = 70.18 ± 6.71)							0.14
60-69	142	47.8	64	52.1	206	49.0	
70-79	128	43.1	42	34.1	170	40.5	
80 and over	27	9.1	17	13.8	44	10.5	
Living arrangement							0.46
With family member	203	68.4	88	71.5	291	69.3	
With spouse	48	16.2	16	13.0	64	15.2	

Table 1 Participants' characteristics (N = 420) in urban (n= 297) and rural (n=123) areas (Cont.)

Characteristics	Urban		Rural		Total		P value
	n	%	n	%	n	%	
Alone	42	14.1	15	12.2	57	13.6	
With someone	4	1.3	4	3.3	8	1.9	
Education level							0.35
No schooling completed	18	6.2	10	8.1	28	6.7	
Primary school	192	64.6	86	69.9	278	66.2	
High school	34	11.4	13	10.6	47	11.2	
Higher education	53	17.8	14	11.4	67	15.9	
Current occupation							< 0.001
Homemaker	187	63.0	69	56.1	256	61.0	
Agriculture or fisherman	29	9.8	31	25.2	60	14.2	
Trades or business	39	13.1	11	8.9	50	11.9	
Retired	42	14.1	12	9.8	54	12.9	
Marital status							0.36
Married	145	48.8	54	43.9	199	47.4	
Never married/Single	30	10.2	19	15.4	49	11.7	
Widowed	99	33.3	38	30.9	137	32.6	
Divorced /Separated	23	7.7	12	9.8	35	8.3	
Incomes (Baht/month)							0.09
< 1,000 (< 31.61 USD)	112	37.7	60	48.8	172	41.0	
1,000-5,000 (31.61-158.0 USD)	94	31.6	38	30.9	132	31.4	
5,001-10,000 (158.0-316.0 USD)	37	12.5	8	6.5	45	10.7	
> 10,000 (> 316.0 USD)	54	18.2	17	13.8	71	16.9	
Duration of hypertension (Years) (M =7.03 ± 7.00)							0.65
< 5	132	44.4	53	43.1	185	44.0	
5-10	129	43.4	51	41.5	180	42.9	
> 10	36	12.2	19	15.4	55	13.1	
Presence of co-morbidity							0.89
Cardio-cerebrovascular disease	18	4.3	9	2.1	27	6.5	
Hyperlipidemia	119	40.1	38	30.9	157	37.4	
Diabetes mellitus	87	29.3	27	22.0	114	27.1	
Arthritis	55	18.5	16	13.0	71	16.9	
Other	50	16.9	17	14.6	67	16.0	
Perceived health status							0.60
Good	135	45.5	52	42.3	187	44.5	
Fair	141	47.5	59	48.0	200	47.6	
Poor	21	7.1	12	9.8	33	7.9	
Risk factors							
Smoking status							0.46
No	287	96.6	117	95.1	404	96.2	
Yes	10	3.4	6	4.9	16	3.8	
Drinking status							< 0.05
No	270	90.9	120	97.6	390	92.9	
Yes	27	9.1	3	2.4	30	7.1	

Perceived self-efficacy among urban and rural older adults

As shown in **Table 2**, the mean and standard deviation for PSE were 2.94 ± 0.59. PSE and subscale were reported as being high level among older adults. An independent t-test was conducted to compare the means of PSE and subscales by residential area. Significantly higher PSE was seen in older adults living in urban (mean, SD = 2.99 ± 0.59) vs. rural (mean, SD = 2.80 ± 0.56) areas ($p < 0.05$). For the PSE subscales, nutrition self-efficacy and health practice self-efficacy provided a significantly higher score in urban residents than for rural residents.

Table 2 Perceived self-efficacy among urban and rural older adults

Variables	Interpretation	Urban (n = 297)		Rural (n = 123)		Total (N = 420)		P-value
		Mean	SD	Mean	SD	Mean	SD	
Perceived self-efficacy (PSE)	High	2.99	0.59	2.80	0.56	2.94	0.59	.003
Nutrition self-efficacy	High	2.81	0.64	2.49	0.68	2.71	0.67	<.001
Well-being self-efficacy	High	3.06	0.74	2.92	0.76	3.02	0.75	.094
Exercise self-efficacy	High	3.01	0.84	2.93	0.85	2.99	0.85	.348
Health practice self-efficacy	High	3.09	0.73	2.88	0.74	3.03	0.74	.006

Note: Compared with independent t-test, interpretation by mean; higher score means better PSE

Health-promoting behaviors among urban and rural older adults

Overall, the mean of HPB was 3.04 ± 0.39, with HPBs and subscales being at an appropriate level (**Table 3**). An independent t-test was conducted to compare the means of HPBs and subscales in residential areas. The results indicated that older adults living in urban areas (mean, SD = 3.07 ± 0.41) had a statistically significant higher HPBs score compared to older adults in rural areas (mean, SD = 2.98 ± 0.34), ($p < 0.05$). The domains of health responsibility ($p < 0.05$) and stress management ($p < 0.05$) were also found to be significantly higher among urban participants than for older adults in rural areas.

Table 3 Health-promoting behaviors among urban and rural older adults

Variables	Interpretation	Urban (n = 297)		Rural (n = 123)		Total (N = 420)		P-value
		Mean	SD	Mean	SD	Mean	SD	
Health-promoting behaviors (HPBs)	Appropriate	3.07	0.41	2.98	0.34	3.04	0.39	.032
Health responsibility	Appropriate	3.00	0.65	2.85	0.57	2.96	0.63	.020
Physical activity	Appropriate	2.71	0.65	2.58	0.62	2.67	0.64	.075
Nutrition	Appropriate	2.99	0.47	2.95	0.40	2.98	0.45	.329
Spiritual growth	Appropriate	3.16	0.59	3.08	0.55	3.14	0.58	.202
Interpersonal relations	Appropriate	3.26	0.50	3.27	0.50	3.27	0.50	.831
Stress management	Appropriate	3.26	0.53	3.14	0.53	3.22	0.53	.042

Note: Compared with independent t-test, interpretation by mean; higher score means better HPBs

Factors predicting HPBs among older adults with hypertension

The correlation matrix of the individual characteristics factors (age, income, perceived health status), PSE, and HPBs is shown in **Table 4**. PSE and perceived health status were positively correlated with HPBs. Age and income were not significantly related to HPBs.

In the regression models displayed in **Table 5**, age, income, perceived health status, and PSE were entered into the models. In the first model, the individual characteristics of age, income, and perceived health status was not significant in predicting HPBs. The addition of PSE in the second model revealed that two predictors significantly influenced HPBs: PSE ($\beta = .458$, $p < .001$) followed by income ($\beta = .069$, $p < .05$). These factors together accounted for 45.4% of the variance. However, age and perceived health status were insignificant predictors in the model. Overall, multicollinearity was not observed in explaining variables.

Table 4. Pearson's correlation coefficient for health-promoting behaviors (N = 420)

Variable	1	2	3	4	5
Age	1.00				
Income	-.216**	1.00			
Perceived health status	-.035	.075	1.00		
Perceived self-efficacy (PSE)	-.024	-.002	.175**	1.00	
Health-promoting behaviors (HPBs)	-.059	.082	.126*	.728**	1.00

Note: *p < .05, ** p < .01, dummy coding variables, income: 0 = ≤ 5000 baht/month, 1 = > 5000 baht/month; perceived health status: 0 = poor, 1 = not poor (indicating fair and good)

Table 5. Hierarchical regression analysis of factors predicting health-promoting behaviors among older adults with hypertension (N=420)

Models	b	Std.	Standardized Beta	t	p
Model 1					
(Constant)	3.347	.192		17.478	< .001
Age	-.004	.003	-.072	-1.422	.156
Income	.013	.040	.016	.315	.753
Perceived health status	-.057	.070	-.041	-.817	.415
R=.090, R^2 =.008, Adjusted R^2 =.001, R^2 change = .008, F = 1.092 (3,397), p = .352					
Model 2					
(Constant)	1.866	.164		11.341	< .001
Age	-.003	.002	-.047	-1.252	.211
Income	.069	.030	.088	2.329	.020
Perceived health status	-.039	.052	-.028	-.760	.448
Perceived self-efficacy (PSE)	.458	.025	.671	17.967	< .001
R=.674, R^2 =.454, Adjusted R^2 =.448, R^2 change = .445, F = 82.189 (4,396), p = < .001					

Discussion

To our knowledge, this is the first study that directly compares PSE and HPBs among older adults with hypertension in urban and rural areas in Thailand. Our findings revealed that older adults living in urban areas had higher PSE and HPBs; these higher PSE can increase urban older adults' capacity to perform better HPBs than those living in rural areas. Prior studies support our findings that older adults with a higher PSE were confident in taking good care of their health and were more likely to engage in HPBs.[17] Further, in Poland, elderly residents in urban areas performed better regarding their engagement in healthy behaviors than elderly rural residents.[34] However, these results are inconsistent with a study on older Korean adults from rural communities as they reported higher HPBs compared with those from urban areas.[21] However, evidence supporting differences between HPBs of older people living in urban versus rural communities remains unclear and requires further research.[16]

As expected, older adults in urban areas had higher scores on health responsibility and stress management aspects than those in rural areas. This might be explained by the fact that living in urban areas contributes to higher levels of human capital, social networks, natural capital, and cultural capital components.[12] This is a meaningful finding because living in urban areas has been associated with improved access to medical care, and where older adults are more likely to receive health check-ups compared to rural residents.[15] Conversely, rural residents have several disadvantages, including economic limitations and a lack of public healthcare services compared with an urban setting, all of which affect the HPBs of rural older adults.[35] Urban respondents have been found to perform better at stress management than rural people in this study. Senior adults in urban communities may be able to meet their basic needs more conveniently, leading to less stress and a better life.[36] Thai senior citizens who participate in community elderly activities have been shown to have higher levels of active ageing through HPBs.[37]

This study also found that PSE was the strongest positive predictor of HPBs among Thai older adults. From Pender's perspective, PSE leads to improved individual confidence, and a higher PSE can be achieved better HPBs.[17] Other studies support our findings, showing that PSE is positively associated with HPBs in different countries, including Thailand.[20, 26] PSE is important because it influences an individual's decision to engage in HPBs to enhance health.[23] Older adults who are confident in their ability to control their hypertension through healthy habits are more likely to have higher HPBs.[26] Therefore, understanding the value of PSE among older adults is meaningful for community nurses who can support older adults in elderly club activities and provide preliminary preventive healthcare in this age group.[38]

Income is another predictor influencing HPBs in the present study. Compared to low-income older adults, those with high-incomes seemed to have better HPBs. We found that the high-income older-adults group had better HPBs than the lower-income group (by approximately 6.9 %.). As previously indicated, a key factor that significantly influences individual behaviors is income. Money can fulfil emotional well-being, enable appropriate food consumption, and make one more likely to develop healthy habits.[39] We observed from the current occupation status of the study participants that more than half (61%) did not work, leading to potential financial problems. A subsequent lack of money led to a poor propensity to meet their basic needs and poor HPBs, which resulted in a lower quality of life.[36] Low income is a risk factor that negatively affects older populations, leading to increasingly poor health behaviors and frailty.[40] Our research found that age and perceived health status did not influence HPBs among older adults. Most

participants were in the middle-old age bracket (average of 70 years). This age group might be less affected by ageing processes, and thus they were perceived as having a good health status in this study.

The success of elderly clubs may be improved by providing psychosocial support to increase HPBs in older adults, according to the Thai government strategy, within established community elderly activities.[8,12,37] The strength of this study was conducting a survey in the province with the highest prevalence of hypertension in Thailand. Also, this study seems to be the first study in Thailand to determine the influence of individual characteristics and PSE on HPBs among older adults with hypertension living in urban and rural residential areas.

Limitations

The study also has some limitations. First, the cross-sectional design was not able to establish the cause-effect relationship between HPBs and the associated variables. Second, perceived health status with total scores and the actual amount of income are suitable categories for determining the predictors of HPBs; using multi-level regression test interactions between groups of residents and associated factors of HPBs could be conducted in future research. Third, this study was performed in one province and, therefore, the generalization of the results to a national level in Thailand or other countries may not be appropriate. Fourth, the participants were recruited from elderly clubs, which may have led to a high level of PSE and an appropriate level of HPBs. Because older adults in elderly clubs tend to have close contact with health professionals, they may more easily access health promotion education.

Conclusion and Implications for Nursing Practice

This study illustrates that PSE and HPBs among older adults with hypertension differed in terms of residential areas, with residents in urban areas in Thailand reporting higher PSE and performance of HPBs. According to the factors influencing HPBs in this study, PSE and income can play a significant role in increasing HPBs. These factors would be useful for nurses to consider when promoting health interventions for older adults, particularly those with low income and living in rural areas. For further studies, we recommend cohort investigations of different factors affecting the HPBs of older adults and a more in-depth evaluation for understanding the differences in HPBs of urban and rural residents through a qualitative approach.

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พฤติกรรมส่งเสริมสุขภาพในผู้สูงอายุที่เป็นโรคความดันโลหิตสูงในเขตเมืองและชนบท: การศึกษาภาคตัดขวาง

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บทคัดย่อ: พฤติกรรมส่งเสริมสุขภาพส่งผลดีต่อการมีสุขภาพที่ดีในผู้สูงอายุ โดยมีปัจจัยที่เกี่ยวข้องหลายประการ ได้แก่ ปัจจัยส่วนบุคคล วัฒนธรรม และสภาพสังคมสิ่งแวดล้อม จากผลการศึกษาที่ผ่านมาพบว่าแหล่งที่อยู่อาศัยมีความสัมพันธ์กับพฤติกรรมส่งเสริมสุขภาพในผู้สูงอายุ อย่างไรก็ตามยังไม่สามารถสรุปได้ชัดเจนว่าผู้สูงอายุในเขตเมืองและชนบทมีพฤติกรรมส่งเสริมสุขภาพแตกต่างกันหรือไม่ การศึกษาภาคตัดขวางครั้งนี้มีวัตถุประสงค์เพื่อศึกษา 1) เปรียบเทียบพฤติกรรมส่งเสริมสุขภาพของผู้สูงอายุที่เป็นโรคความดันโลหิตสูงในเขตเมืองและเขตชนบท และ 2) ทดสอบความสามารถในการทำนายของปัจจัยส่วนบุคคล (อายุ รายได้ การรับรู้ภาวะสุขภาพ) และการรับรู้ความสามารถของตนเองต่อพฤติกรรมส่งเสริมสุขภาพ กลุ่มตัวอย่างคือผู้สูงอายุ จำนวน 420 ราย เก็บข้อมูลโดยใช้แบบสอบถามข้อมูลส่วนบุคคล แบบสอบถามการรับรู้ความสามารถของตนเอง และแบบสอบถามพฤติกรรมส่งเสริมสุขภาพ วิเคราะห์ข้อมูลด้วยค่าสถิติเชิงพรรณา สถิติสหสัมพันธ์ของเพียร์สันและการวิเคราะห์ถดถอยพหุแบบเชิงชั้น

ผลการศึกษาพบว่า ผู้สูงอายุในเขตเมืองมีระดับคะแนนการรับรู้ความสามารถของตนเองและพฤติกรรมส่งเสริมสุขภาพสูงกว่าผู้สูงอายุในเขตชนบท การรับรู้ความสามารถของตนเองและรายได้เป็นปัจจัยที่สามารถทำนายพฤติกรรมส่งเสริมสุขภาพในผู้สูงอายุ โดยพยากรณ์ได้ร้อยละ 45.4 ผลจากการศึกษานี้สามารถนำไปประยุกต์ใช้ในการจัดกิจกรรมพยาบาลสำหรับผู้สูงอายุ โดยการสนับสนุนการให้สุขศึกษา เสริมความมั่นใจ ลดความวิตกกังวลและความทุกข์ เพื่อเพิ่มการรับรู้ความสามารถของตนเอง ส่งผลให้ผู้สูงอายุมีพฤติกรรมส่งเสริมสุขภาพที่ดีตามมา โดยเฉพาะอย่างยิ่งในกลุ่มผู้สูงอายุที่มีรายได้น้อยและอาศัยอยู่ในพื้นที่ชนบท

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คำสำคัญ: พฤติกรรมส่งเสริมสุขภาพ การส่งเสริมสุขภาพ ความดันโลหิตสูง การพยาบาล ผู้สูงอายุ ชนบท ความสามารถในตนเอง เขตเมือง

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