

Factors predicting on health behaviors among older adults with hypertension in community

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ABSTRACT

In Thailand the prevalence of hypertension continues to rise and health behavior of older adults is generally suboptimal. The purpose of this study was to identify the characteristics that can identify health behavior in older persons with hypertension. A cross-sectional design study was carried out on 123 hypertensive older persons in Koh Kaew Sub-District, Sela Phum District, Roi Et Province, who were chosen using a simple random selection procedure. In-person interviews with structured questionnaires were used for gathering data. This study utilized surveys to collect demographic information, health beliefs, and health habits. Percentage, mean, standard deviation, and stepwise multiple regression were used to evaluate the data. The results showed that there were four factors together predict and explain the variance of health behaviors among older adults with hypertension accounting R^2 and adjusted R^2 value were 44.10% and 42.20% with statistical significance including female ($\beta=0.242$, $p=0.001$), perceived susceptibility ($\beta=0.419$, $p<0.001$), perceived barriers ($\beta=0.239$, $p=0.001$), and perceived benefits ($\beta=0.181$, $p=0.013$). To improve quality of life among older persons with hypertension, this research proposed involving healthcare providers, families, and health volunteers in promoting their health habits.

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1. INTRODUCTION

One of the most frequent non-communicable diseases (NCDs) that has been identified as a public health issue globally, particularly in poorer nations, is hypertension. Globally, approximately 1.28 billion adults between the ages of 30 and 79 have been diagnosed with hypertension, with roughly two thirds residing in lower and middle income nations, including Thailand [1]. The pervasiveness of hypertension rises dramatically as adults get older [2]. Roughly 60% to 70% of older adults presently suffer from hypertension. Globally, it has been found to be a primary source of stroke and ischemic heart disease, leading to untimely mortality [3].

Among older adults in Thailand, the pervasiveness of hypertension equals 41% [4]. In the past four years (2016-2020), it was found that the morbidity rate with hypertension per hundred thousand population increased from 75,110 to 81,545, the mortality rate with hypertension per hundred thousand population increased from 114.10 to 124.65 [5] and the northeastern region found older adults with hypertension with 278,132 cases [6]. Roi Et Province is one of the provinces in the northeastern region of Thailand found that the

morbidity rate with hypertension per hundred thousand population increased from 162 to 349, the mortality rate with hypertension per hundred thousand population increased from 12.38 to 26.83 [5]. Undiagnosed and untreated hypertension can cause various complications [7]. The adverse outcomes lead to increased hospitalization, institutionalization, mortality and disability apart from the adverse outcome, hypertension can lead to increased treatment costs [7], [8]. According to a statewide survey in Thailand, more than 60% of older persons had hypertension as well as inadequately controlled blood pressure [9], [10]. From the aforementioned statistics, it was found that the number of hypertension and mortality rate is increasing rapidly in Roi Et Province.

The way of life of the northeastern people eating most foods is spicy and salty. People eat sticky rice, vegetables, fish and meat with fermented fish as the main ingredient in cooking [11]. A literature review indicated that risk factors for developing hypertension in the older people include personal factors, including: i) male gender [12], ii) having a family history of hypertension [13], [14], iii) having a family history of diabetes mellitus [1], and health behavioral factors, including: i) consuming less fruit [14], ii) consuming a diet in high sodium, iii) consuming a diet in high potassium, iv) alcohol consumption [15], v) smoking [1], vi) over weight or obesity [12], [13], [15], vii) not exercising [13], [16], and viii) physical inactivity [12] which health behavior is an important factor that can help older adults control their blood pressure and reduce the use of blood pressure medication in long-term treatment [17]. Past studies have found that inappropriate behaviors such as high alcohol consumption, failure to comply with dietary guidelines, and being overweight are connected with chronic hypertension, both individually and collectively, and especially among males. Consequently, improving configurable lifestyle variables might provide significant advantages in the treatment of hypertension [18].

According to the Roi Et Provincial Health Office survey in Koh Kaew Sub-District, Sela Phum District, Roi Et Province, Northeastern of Thailand, there were older adults with hypertension during 2019–2021 about 41.32%, 41.18%, and 43.00% respectively [19]. Therefore, the number of older adults with hypertension in this community was raised and this community was a neighborhood where the university is located and the university had placed an emphasis on promoting people health relative to strategy of university for enhancing people quality of life. As a result, healthy habits among older persons with hypertension in the community is critical for helping older adults regulate their blood pressure. On the basis of several components of the health belief model (HBM), this study was conducted to evaluate the determinants impacting health behavior among older persons with hypertension. HBM is a conceptual framework that may be used to drive health promotion and disease prevention initiatives. It is made up of three components including personal perception, moderating factor, and likelihood of action [20]. The present results may be used to enhance quality of life among older adults in Roi Et Province.

2. METHOD

A cross sectional approach was used in the present investigation, involving face to face interviews and structured questionnaires. Power analysis was used to determine sample size using the G power 3.1.9.2 software [21] correlation, bivariate normal model, effect size of 0.3 [22], and power test of 90. To determine the sample size, the statistical significance was set at .05, and 112 individuals were required necessary. To compensate for any missing information in the questionnaires, 10% of the sample was added, and a sample size of 123 was necessary. The sampling approach was probability utilizing a basic random sampling procedure with no substitution. Adults aged 60 and over, diagnosed with hypertension for at least one year based on Selaphum registration data, competent to converse in Thailand, and ready to contribute as respondents were deemed to have met the inclusion criteria. The following were among the exclusion criteria: afflicted with dementia and Alzheimer's disease as determined by a physician, suffering from effects of hypertension (stroke) or hospitalized during the data collecting period. This research was carried out in June 2022. This study received Ethical approval from the Research Ethics Committee of Roi Et Rajabhat University (Approval number 035/2565).

In person interviews using structured questionnaires were used to collect data. The demographic information was incorporated in the questionnaires utilized for this investigation. The primary investigator created the health beliefs questionnaire after conducting a literature review. The questionnaire comprises four components comprising perceived vulnerability and complications to illness onset, perceived degree of illness, perceived advantages of preventing and treating diseases, and reported obstacles to behaviors related to health. The instrument comprised 20 items, with each evaluated on 5-point scale varying from 1 to 5, with 1 signifying “highly disagree” and 5 indicating “highly agree”. The scores for all items were categorized as one of three levels of confidence in health according to mean and standard deviation (SD): poor (1.00–2.33), fair (2.34–3.66), and good (3.67–5.00).

The health behaviors questionnaire was developed the principal investigator based on a literature review. This instrument is composed of 15 items. The potential scores varied between 1 and 5, with high scores signifying nearly always (seven days a week), four indicating very frequently (5–6 days per week), three indicating often (3–4 days per week), two indicating sometimes (1–2 days per week), and one indicating never. The questionnaire presents six dimensions includes eating, exercise, mood adjustment, Medication use and compliance with medical orders, smoking, and alcohol consumption which is a positive question consist of 8 items such as item 1, 7, 8, 9, 10, 11,12 and 13, a negative question consist of 7 items such as item 2, 3, 4, 5, 6, 14, and 15. The score of all item was classified into three level of health behavior based on mean and SD as follow: low (1.00–2.33), fair (2.34–3.67), and high (3.67–5.00).

The content validity and reliability of each questionnaire was assessed. An adult gerontology nurse practitioner, a gerontology nurse and a community nurse assessed content validity. Validity and reliability tests were carried out among 30 people who had the same inclusion criteria as respondents. In this study, Cronbach's alpha value was 0.83 and 0.87 respectively. A stepwise multiple liner regression approach was used to evaluate the data. Age, gender, education level, monthly income, hypertension duration, employment, perceived vulnerability, perceived severity, anticipated obstacles, and apparent advantages were all incorporated as factors for health behaviors.

3. RESULTS AND DISCUSSION

The subjects' characteristic, as well as the frequency and percentage of each variable, are shown in Table 1. The majority of participants were male (65.90%), while 52.80% were between the ages of 60 and 69 years, 84.55% had graduated from primary school, 39.00% earned monthly incomes from 151 to 300 USD. More than half of participants had been suffering from hypertension for 1 to 5 years (55.35%), and were farmers (61.00%). Therefore, the researcher should pay attention to health behaviors among older adults with hypertension in community.

Table 1. Gender, age, education, income, duration of hypertension, and occupation among respondents

Characteristics	Frequency	Percentage (%)
Gender		
Male	81	65.90
Female	42	34.10
Age (years)		
60-69	65	52.80
70-79	55	44.70
>80	3	2.50
(M=68.59, SD=6.81, Min=60, Max=88)		
Education level		
Primary school	104	84.55
Senior high school	12	9.75
Diploma or Bachelor	7	5.70
Monthly income		
<50 USD	23	18.70
50-150 USD	40	32.60
151-300 USD	48	39.00
301-450 USD	11	8.90
>450 USD	1	0.80
Duration of hypertension (years)		
1-5	68	55.30
5-10	36	29.30
>10	19	15.40
Occupation		
No occupation	25	20.30
Merchants	8	6.50
Employees	7	5.70
Farmers	75	61.00
Government employees	8	6.50

In Table 2, the final regression model generated by stepwise multiple regression analysis demonstrated that four factors, consisting of female gender, perceived susceptibility, expected obstacles, and anticipated benefits, greatly impacted the health behaviors of older adults with hypertension in Koh Kaew Sub-District, Sela Phum District, Roi Et Province. The multiple regression analysis indicated that female gender, perceived susceptibility, perceived barriers, and perceived benefits were statistically significant factors affecting health behaviors among the older adults with hypertension in Koh Kaew Sub-District, Sela Phum District, Roi Et

Province (p -value <0.05) and could predict health behaviors among older adults with hypertension. This is consistent with [23], who found that a positive assertion in health could stimulate a reduction in blood pressure, an essential aspect for the administration of risk factors. Similarly, the previous studies found that the predictors of health behaviors were female gender [24], perceived susceptibility, perceived barriers, and perceived benefits [24], [25], illness perception [26], and could predict health behavior up to 26.8% (Adjusted $R^2=0.268$) [24], 47.0% (Adjusted $R^2=0.47$), 65.0% ($R^2=0.65$) [26].

Table 2. Final model of factor predicting between health belief and health behavior among older adults with hypertension (n=123) as assessed using a stepwise approach

Factors	B	SE	β	t	P
Female gender	3.491	1.012	.242	3.449	.001*
Perceived susceptibility	1.413	.246	.419	5.744	<.001*
Perceived barriers	.235	.070	.239	3.373	.001*
Perceived benefits	.490	.195	.181	2.516	.013*

$R^2=0.441$, Adjust $R^2=0.422$

Female gender was significantly associated with health behaviors amongst older adults with hypertension, likely due to there being gender differences in certain health behaviors such as smoking, and drinking alcohol. In which different genders are different lifestyles of self care. Females have more positive self care behavior than males. This consistent with previous studies were report that female had higher score of health promoting lifestyle and health responsibility than male [27].

In this research, perceived susceptibility was significantly associated with health behaviors in older adults with hypertension. The current results matched those of Pan *et al.* [28], Teshome *et al.* [29], and Putri *et al.* [30]. Adjustments in attitudes and actions among older persons will result from their supposed vulnerability to illness. Thus, self belief and self education lead towards suitable behaviors for health. This conflicts with researchers, who reported that there was no link between supposed susceptibility [25], [31] and preventive behaviors against NCDs [31]. The results of the current study revealed that perceived barriers were a significant association with health behaviors among older adults with hypertension. People who will cooperate, accept, and follow other people's advice must be to recognize the benefits of the practice by believing that what they do is the best and can prevent the disease. This finding affirms the previous study which reported that perceived barriers were significantly influenced self-care behavior [31], [32] meaning that increasing the perceived barriers increases the probability of health behaviors. It can be challenging to persuade individuals to modify their behavior when there is no perceived benefit in doing so. People are unwilling to relinquish what they appreciate unless they receive something in exchange. Regarding the perceived benefits, in our study which was a significant association with health behaviors among older adults with hypertension. This is similar to previous studies that found the perceived benefits were affecting increased self-care behavior [31], [33]. Our study results revealed that age, income, education level hypertension duration, and occupation were not associated with health behaviors amongst older adults with hypertension, likely attributable to the participants' mean age of 68.59 years. Mostly, the participants were aged group 60–69 years, monthly income was 151–300 USD, hypertension duration was 1–5 years, and farmer's occupation. None of these had any influence on the health behaviors of older adults with hypertension, which is in agreement with the study of Sangsaikaew *et al.* [34] which reported that the factors were not linked to self care habits, such as age, gender, and duration of hypertension.

4. CONCLUSION

The health belief model, which served as the conceptual framework for this investigation, was found to be a suitable model for health behaviors among older individuals with hypertension in Koh Kaew Sub-District, Sela Phum District, Roi Et Province. Female gender, supposed vulnerability, supposed obstacles, and reported advantages were identified as characteristics that potentially anticipated variation in health behavior amongst older persons with hypertension. According to the research, family, health volunteers, and health care providers should support and advocate good hypertension practices among older persons.

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