

HEALTH LITERACY AND HYPERTENSION AMONG VILLAGE HEALTH VOLUNTEERS IN A DISTRICT OF THAILAND

Pathamawadee Duangkanya¹, Kritkantorn Suwanaphant², Wanasri Wawngam³, Kantapat Teemuangsong⁴, Sukanya Khansin⁵, Sribud Srichaijaroonpong⁶

¹*Nong Hi Hospital, Roi Et province, Thailand*

^{2,3}*Sirindhorn College of Public Health, Khon Kaen, Thailand*

⁴*New Vision University, Tbilisi, Georgia*

⁵*Ratchathani University Udonthani Campus, Thailand*

⁶*Faculty of Public Health, Kasetsart University Sakon Nakhon campus, Sakon Nakhon, Thailand.*

⁶*E-mail: sribud123@gmail.com*

ABSTRACT

Health literacy is known to be related to the success of health care, such as in chronic disease treatments. This study investigated the factors related to hypertension among village public health volunteers in a district of Thailand. The study used cross-sectional analytical research with a population of 721 village public health volunteers. Data were collected by interviewing a systematic random sample of 297 people. Based on the data, 16.84% of the sample group had hypertension (95% CI: 9.43 to 24.68%) and the majority of all samples were female (85.19%). The average age was 50.53 years (S.D. = 9.53). The sample group was mostly primarily educated (49.16%). The health literacy level among most of the sample group was fair (39.39%). Specifically, the health literacy factors associated with hypertension were identified as the health behaviour change dimension (AOR = 3.07; 95% CI: 1.55 to 6.07; p-value = 0.001) and the knowledge transfer and sharing dimension (AOR = 2.88; 95% CI: 1.38 to 6.03; p-value = 0.005). The recommendation from this study is that an appropriate training program on health literacy, especially the health behavior changes dimension and the knowledge transfer and sharing dimension, should be provided for village health volunteers as well as activities promoting the cognition of hypertension.

Keywords: Health literacy (HL), Hypertension (HT), Village health volunteers (VHV)

I. INTRODUCTION

Currently, health problems affecting the world's population are showing signs of change from the occurrence of communicable diseases to chronic non-communicable diseases. Changes in social, economic, cultural, and environmental conditions affect the way of life, thus health conditions are causing more chronic non-communicable diseases. The importance of hypertension as a major cause of common serious diseases has been recognized in most Western countries. (Perkovic V, Huxley R, Wu Y, Prabhakaran D, MacMahon S., 2007) Hypertension is the most common cardiovascular disorder affecting approximately one billion people globally and remains a major contributor to the global burden of non-communicable diseases and mortality (Princewell F, Cumber SN, Kimbi JA, et al., 2019). Without treatment and control of blood pressure to normal levels, there will be complications as the blood vessels are destroyed and hardened, causing major organ damage, resulting in critical hypertension, heart attack, kidney failure, paralysis, disability, and premature death (WHO, 2013).

World Health Organization (2013) reported that hypertension was the leading cause of death with 7.5 million worldwide or 12.8 % of all causes of death. The global prevalence of hypertension was estimated at 1.56 billion in 2025, mainly due to lifestyle factors such as low physical activity, high sodium, and fat food consumption, alcohol consumption, and smoking, which increase the burden of disease. (Rogo KO, Oucho J, Mwalali P. Maternal Mortality. In Jamison DT, Feachem RG, Makgoba MW, et al., editors., 2006)

In Thailand, hypertension remains a major health problem The prevalence of hypertension cases per 100,000 people over five years (2013–2017) increased from 12,342.14 to 14,926.47 cases. The prevalence of new

hypertension cases per population of 100,000 people over three years (2015–2017) increased from 916.89 to 1,353.01. In addition, the mortality rate of hypertension cases per population of 100,000 people (2013–2017) increased from 8.0 to 13.1. (Aekplakorn W, Sangthong R, Kessomboon P, et al., 2012) Uncontrolled hypertension was detected among 16,122 patients (24.6%; 95% CI 24.2–24.9). Among males and females, uncontrolled hypertension was 25.6% (95% CI 25.1–26.2) and 23.9% (95% CI 23.5–24.3) (Sakboonyarat B, Rangsin R, Kantiwong A, Mungthin M., 2019)

Health literacy is a skill and capability that has a huge impact on the health care process in developing, understanding, evaluating, and using health information and concepts (Zarcadoolas C, Pleasant A, Greer DS., 2005) Health literacy refers to the knowledge and social skills used to explain the motivation and ability of an individual to access, understand and use the information to promote and maintain good health. Health literacy means more than being able to read leaflets and make appointments successfully. Therefore, health literacy is important for empowering access to public health information and the ability to use health information efficiently. (United Nations E, Social C., 2010) Health literacy is an important indicator for controlling blood pressure, including the patient's confidence in the treatment and self-management of blood pressure disease. (Pandit AU, Tang JW, Bailey SC, Davis TC, Bocchini MV, Persell SD, et al., 2009) Health literacy in many ways contributes to lowering systolic blood pressure. (Halladay JR, Donahue KE, Cené CW, Li Q, Cummings DM, Hinderliter AL, et al., 2007)

The Village Health Volunteers (VHV) is an organization whose members are individuals in the community who volunteer to work in public health care. (Department of Health Service Support, Ministry of Public Health, 2019) The VHV is considered one of the main mechanics of the public health system. (Primary Health Care Division, Ministry of Public Health, 2019) It is a vital, public-based, core component in the healthcare structure, in supporting the expansion of the national health system following government policy and the Health Act. VHV members provide advice and knowledge transfer in health care as well as motivation and leadership in the development of the health and well-being of individuals in the community. The members also act as change agents in public health behavior in the community. They are responsible for correcting 'fake news, spreading useful news, directing the service, coordinating public health, healing patients, and representing themselves as good deed persons. The VHV is a group of people within the community who are well trained, know based on information from health officials, act as health professionals in the community, and represent a model for adapting proper health behavior in the community. Consequently, a VHV member should be a healthy role model to educate the people in a community. (Atiya Sarakshetrin, Rungnapa Chantra, Rostikorn Kwanshom, Ladda Ruangdong, 2018)

More research studies on hypertension are becoming available. However, the study is limited regarding hypertension in VHV members, especially in any one district of Thailand. Therefore, to understand the occurrence of hypertension among the village public health volunteers in a district of Thailand, the researchers selected the district where they lived. The objectives were to understand health literacy as well as illness, health behavior, and the prevalence of hypertension among village public health volunteers and to identify the factors associated with hypertension in a district of Thailand. The knowledge gained can be applied in planning for adapting lifestyle behavior for the prevention of chronic non-communicable diseases for VHV members within a district of Thailand.

II. MATERIALS & METHODS

Participants and data collection

This research was an across-section analytical study. Data were collected from interview forms. The population used in this study was the 719 VHV members in the chosen district who had been registered as members for at least one year. The sample was a systematic random sample from the population. Names in the list were arranged for sampling in ascending order of registration number. The sample size was calculated using the sampling formula for multivariate correlation analysis with multiple logistic regression statistics. The sample size for this research was 297 participants.

Ethical consideration:

The Ethical Committee of Sirindhorn College of Public Health, Khon Kaen province, Thailand approved (reference no. HE 6210024) the exemption for ethical approval for this study.

Data analysis

A software package was used to analyze the following data: 1) Descriptive statistics: personal attributes, socio-economic factors, illness and health behavior, health literacy Data were enumerated using frequency distribution statistics and percentage and for continuous data statistics, the average, standard deviation, median, quartile range, maximum and minimum values were used.2) Inference statistics: multiple logistic regression statistics were used to analyze the relationship between hypertension in VHV members and independent variables (Final Model) based on analyzing multiple variables and the results were presented using the adjusted odds ratio and a P-value.

III. RESULTS

General information

From Table 1, the majority of the sampling group was female (85.19%). The average age was 50.53 ± 9.53 years. Of the sample, 83.50% were married and 49.16% had primary education. The main occupation was agriculture (96.97%). Just over half (56.57%) of the sampling group had a body mass index in the range of 18.5-24.9 kg/m². The blood pressure level was normal for 78.45% of the sampling group.

Table 1 Summary statistics for village health volunteers in a district of Thailand (n = 297)		
General information	Number (n)	Percentage (%)
Gender		
Male	44	14.81
Female	253	85.19
Age (years)		
20-29	5	1.68
30-39	26	8.75
40-49	123	41.41
50-59	90	30.30
60 or greater	53	17.85
Mean ± S.D.= 50.53 ± 9.53, (Min: Max) (26: 78)		
Marital Status		
Married	248	83.50
Widowed/Divorced	27	9.09
Single	16	5.39
Separated	6	2.02
Level of Education		
Primary School	146	49.16
High School/Vocational Certificate	91	30.64
Junior High School	54	18.18
Uneducated	6	2.02
Occupational		
Agriculture	288	96.97
Employed	4	1.35
Trade	3	1.01
Other occupation	2	0.68
Body Mass Index: (kg/m²)		
Less than 18.5	7	2.36
18.5-24.9	168	56.57
25 up	122	41.08
Mean ± S.D.: 24.72 ± 3.65, Median (Min: Max) 24.44 (16.30: 37.04)		
Level of hypertension		
Low to normal	233	78.45
High	64	21.55

Socio-Economic Information

The majority of the sampling group had 1 to 11 household members, with 60.27% having 5 household members or more. Family status as a family member was 61.62%. The average family monthly income was from 1,000 to 65,000 Thai baht. The median family monthly income was 10,000 TB and 38.05% had a monthly income of more than 15,001 TB. The average monthly expenses per family were 10,000 to 95,000 baht. The median monthly

family expense was 10,000 TB and 31.31% had monthly expenses of more than 15,001 TB, while 94.8% of the sampling group had debts. All (100.00%) respondents played a role in a community or society.

Information on illness and health behavior

In the sampling group, 11.11% were diabetic. Many of the respondents (57.24%) did not drink alcohol and 86.87% were non-smokers with average cigarette consumption between 2 and 20 units/day. Physical activity was undertaken occasionally by 43.43% of respondents, while 46.80% preferred sweet foods and 66.22% had no sleep problems.

Health literacy factors

Access to health services information was good for 49.83% of the group, fair for 27.95%, and poor for 15.82%. Adequate health understanding and service were classed as fair for 39.06% of the group, good for 38.72%, and poor for 14.14%. Inquiry interactions for knowledge were classed as fair for 38.38% of the group, good for 31.99%, and poor for 22.89%. Health decisions were classed as good for 41.09% of the group, fair for 29.63%, and poor for 16.84%. Health behavior was classed as fair for 38.38% of the group, good for 31.99%, and poor for 24.24%. Knowledge transfer and sharing were classed as good for 37.04% of the group, fair for 30.98%, and poor for 23.91%.

Health literacy factors and hypertension in village health volunteers in one district of Thailand.

Based on multivariate analysis, multiple logistic regression statistics were used with a backward elimination technique. It was found that the health literacy factor in health behavior change was associated with hypertension in VHV members from one district in Thailand. The VHV members whose health behavior change literacy levels were fair to unsatisfied had hypertension 3.07 more times (95% CI: 1.55 to 6.07: p-value = 0.001) compared to those whose literacy levels were higher. On the other hand, in terms of knowledge transfer and sharing, the VHV members whose literacy levels were fair to unsatisfied had hypertension 2.88 more times (95% CI: 1.38 to 6.03: p-value = 0.005) compared to those who had higher literacy levels, as shown in Table 2.

Table 2 Health literacy and hypertension among village health volunteers in a district of Thailand (n=297)

Factor	Number	% of Hypertension	Crude OR	AOR	95% CI	p-Value
Health Literacy (Health behavior change skill)						0.001
Good to excellent	186	13.98	1	1		
Fair to Unsatisfied	111	21.62	2.09	3.07	1.55 to 6.07	
Health Literacy (Knowledge transfer and sharing skill)						0.005
Good to Excellent	163	19.02	1	1		
Fair to Unsatisfied	134	14.18	1.87	2.88	1.38 to 6.03	

IV. DISCUSSION

The study indicated that the prevalence of hypertension among VHV's members in a district of Thailand was 16.84% (95% CI; 5.26 to 19.32). This may have been to the fact that most of the group members were over 40 years. Based on the survey by the Office of Non-Communicable Diseases, Department of Disease Control in 2018, the prevalence of hypertension in the population aged over 15 years old had increased from 21.4% to 24.7%. (Nonthaburi. Office of the Permanent Secretary, Ministry of Public Health, 2018) Most patients acquired hypertension initially when aged 25-55 years old. These findings were also consistent with the study conducted by Ban Paew District, Thailand, they found that hypertension significantly increased with older age group from 40-49 to 60-69. (Puavilai W, Laorugpongse D, Prompongsa S, Sutteerapatranont S, Siriwiwattaku N, Muthapongthavorn N, et al., 2011) In rural Cameroon, they found that the age-standardized prevalence of hypertension was 23.9% (95% CI=20.3–27.5) with hypertension were significantly older median age in years=64.0 years vs 42.0 years. (Simo LP, Agbor VN, Noubiap JJN, et al., 2020) Patients older than 40 years were more likely to feel hypertension. The primary causes based on the findings were eating habits, non-physical activity, smoking, alcohol consumption, and being overweight. (Nonthaburi. Office of the Permanent Secretary, Ministry of Public Health, 2018) (Puavilai W, Laorugpongse D, Prompongsa S, Sutteerapatranont S, Siriwiwattaku N, Muthapongthavorn N, et al., 2011), the reported similar the studied of Magobe, Poggenpoel & Myburgh (Magobe NBD, Poggenpoel M, Myburgh C.,2017), they mention that hypertension, being a lifestyle chronic condition, was by implication a lifelong condition that may not be curable. However, some study they

found that hypertension can be controlled in 50% of adults through healthy lifestyle changes. (Smith PJ, Blumenthal JA, Babyak MA, et al, 2010) The first step in the management of hypertension is lifestyle modification. (Hypertension guideline working group, Seedat YK, Rayner BL, Veriava Y., 2014) Besides, it was found that the risk of hypertension increased 2.5 times for people aged over 40 years compared to people under 40 years, while people aged over 60 could have a 4.5 times greater hypertension risk. Furthermore, people who regularly consumed alcohol for more than 10 years were 2.9 times more at risk of having hypertension. (Princewel F, Cumber SN, Kimbi JA, et al., 2019)

The participant of this study had a fair level of health behavior change literacy (38.38%). It was due to nearly half of the group (49.16%) having a primary education (95% CI 5.26 to 19.32) and so we're able to recognize and create self-learning opportunities to be healthy. The risk factors for hypertension including consuming alcohol (18.18%), smoking (5.39%), having a BMI greater than or equal to 25 kg/m² (41.08%) and a salty diet (21.89%), and physical activity less than three times a week (37.04%). These findings were consistent within three villages of the field-practice area of the rural health training center of community medicine department, M. P. Shah medical college, Jamnagar, they found that risk factors for hypertension were found in orders of overweight (22.80%), tobacco chewing (14.80%) and smoking (8.40%). (Makwana N, Viral S, Sudham K, Choudhary M, Kalpesh G, Yadav S, et al., 2012) Likely study in Kenya, the prevalence of current smoking and alcohol consumption was 8.5 and 13.1 % respectively. Over one quarter 26.2 % of participants were classified as overweight (Body Mass Index [BMI] ≥ 25 to ≤ 29.9 kg/m²), and 17 % classified as obese (BMI ≥ 30 kg/m²). (Olack, B., Wabwire-Mangen, F., Smeeth, L. et al., 2015) Change behavior is considered to prevent hypertension. (Hypertension guideline working group, Seedat YK, Rayner BL, Veriava Y., 2014) In terms of knowledge transfer and sharing health information, the study response was at a good level (37.04%) as it was for access to health and health services data (49.83%). For health making decisions, the response was also at the good levels (41.09%) due to the participant having access to information on hypertension and its practices through many channels, for example, health professionals, health volunteers, and training, in addition to own motivation and self-care. The group also received accurate health information, so it could advise others. This was in line with Na Pathalung & Thepakorn in 2017 they found that the training program can enhance VHVs' abilities for determining DRPs for HTN and DM patients. Our findings may contribute to the future development of VHVs program for improving VHVs competent skills for DRPs chronic diseases. (Pathalung P, Thepakorn P., 2017) The willingness of FCHVs to contribute to the prevention, control, and management was strong, and they were confident that with some basic training they could obtain skills in hypertension management. (Neupane D, Mclachlan CS, Gautam R, et al., 2015) The ability of the sampling group in passing along and exchanging health information resulted in its better health care behavior. The current study is classed as good for improved own health behavior. The current study of 297 respondents identified factors associated with hypertension among village public health volunteers in a district of Thailand:

For health literacy in health behavior, VHVs members whose literacy levels were fair to poor had hypertension 3.07 times (95% CI: 1.55 to 6.07: p-value = 0.001) which those whose have literacy levels were good or higher. Health behavior very important skill that demonstrates the level of health literacy of VHVs, when considering the advantages and disadvantages of factors and behavior that affect health. Good living, and quality of life both relate to hypertension. (Jayasinghe UW, Harris MF, Parker SM, et al., 2016) The people who have low health literacy were found that to be associated with hypertension.

For health literacy in terms of knowledge transfer and sharing dimension, the VHVs members who have the health literacy presented at a fair or lower-level had hypertension 2.88 times (95% CI: 1.38 to 6.03: p-value = 0.005) more than those with high levels of health literacy. Overall, the VHV practiced knowledge transfer and sharing health information presented at the moderate levels (44.11%) which agreed well with the results of the case study in Thailand, they found that literacy and the ability of VHVs were good levels except writing the message for other to understand, reading comprehension, seeing things clearly, and overall health status, which were moderate level. For all 14 aspects of health literacy, VHVs obtained 7.8-8.9 points from a total score of 10, which was higher than the general population. The 4 aspects of the lowest score were herbs and supplementary foods, exercise for health, health information criticizing, and community health support. And they suggested that the policy to improve VHVs' health literacy should be promoted. The appropriate programs for each group of VHVs' health literacy should be set to raise health literacy levels especially the issues about herbs and supplementary foods, health information criticizing, and exercise for health. Further research should evaluate the effectiveness of the different programs for improving VHVs' health literacy. (Visanuyothin S, Chatanuluk C,

Saengsuwan S, Rojanavarapong A, Pornchanya P., 2015) An explanation for this finding could be that knowledge transfer and sharing is a skill that reflects a person's cognition and ability to understand, think and analyze the content of a media presentation and then interpret and value what has been presented. (Nutbeam D., 2008)

V. CONCLUSION

This study identified that health literacy, specifically health behavior and knowledge transfer and sharing, were associated with hypertension conditions among village health volunteers. The Ministry of Health and related agencies should promote health literacy in health behavior change and knowledge transfer and sharing dimensions, such as via activities to promote knowledge and understanding of hypertension and to provide up-to-date information on hypertension.

ACKNOWLEDGMENTS

The Public Health District Office in District One in Thailand provided information for the research. Thanks are extended to the Director of the Health Promoting Hospital in District One for providing facilities and the experimental tools. Special thanks are recorded for the public health volunteers in the villages for participating in the survey.

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