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Perceived Self-Efficacy, Outcome Expectations and Self-Care Behavior of Hypertension Patients Treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals, Muak Lek District, Saraburi Province, Thailand

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Abstract

The study investigated the level, perception, and factors of perceived self-efficacy, outcome expectation, and self-care behavior in 3 categories (nutrition, physical exercise, and stress management) of hypertension patients. Sixty-two subjects with blood pressure controlled <160/100 mmHg receiving normal treatment and program were randomly selected from two settings. Questionnaires with descriptive statistics, t-test and stepwise multiple regression were used to predict perceived self-efficacy and outcome expectations influencing self-care behavior.

Most respondents perceived self-efficacy, outcome expectations, and self-care behavior in 3 categories (intermediate to the highest level). The independent sample t-test demonstrated that self-efficacy in physical exercise of the sample at Langkao Hospital is significantly higher than that of Saonoi. The outcome expectation in nutrition aspects of the sample of Saonoi Hospital is significantly higher than that of Langkao. Perceived self-efficacy and outcome expectations in these 3 categories can significantly predict self-care behavior alone at the 95% ($p < 0.05$) level. The best factor significantly predicting self-care behavior (61.90%) is perceived self-efficacy in stress management ($p < 0.05$). These findings show that both hospitals should routinely offer health-related activities in the 3 categories. Information should be demonstrated with hands-on practice whenever possible. These findings reflect the initiative of Thai Public Health strategies and policies for non-communicable diseases (NCD).

Keywords: *Perceived Self-Efficacy; Outcome Expectation; Self-Care Behavior; Hypertension Patients*

Introduction

High blood pressure **(**hypertension) is a major cause of premature deaths. The worldwide deaths of adults due to hypertension were estimated to be almost 8 million each year, with about 1.5 million throughout Southeast Asian populations. Hypertension also plays an etiologic role of up to 50% of deaths from stroke/paralysis and cardiovascular disease (Pangjunant & Panthuvet, 2013).

Data from the 4th annual health survey of the Thai population via health check-ups (2008-2009) revealed that there were 11.5 million people over 15 years old with high blood pressure, 60% male and 40% female; 8-9% had undiagnosed high blood pressure. The condition is increasingly worse for patients with a positive diagnosis but without appropriate treatment (Pangjunant & Panthuvet, 2013). Data from the Bureau of Policy and Strategy, Ministry of Health showed 3,664 hypertension deaths in 2001. However, an almost fivefold increase occurred between 2001 and 2011, when the rate soared from 287.5 to 1433.6 per 100,000 (Bureau of Policy and Strategy, Ministry of Health, 2011).

Hypertension is a chronic disease and has no cure (Pangjunant & Panthuvet, 2013). One of the most dangerous aspects of hypertension is that people do not know if they have it. The early stage of hypertension usually has no noticeable symptoms, and this is why it is sometimes called the “silent killer”. The pathology of the disease will spread slowly until the symptoms are more severe. It is usually identified through health screening. Treatment is only symptomatic to reduce severity of symptoms, which may make the disease more aggressive. Untreated high blood pressure leads to worsening and severe complications, which may require longer and more sophisticated treatments. With a proper treatment regimen, hypertension patient symptoms are palliative with improved life quality.

For hypertension patients who cannot care for themselves or without proper treatment, symptoms become more severe and may lead to premature death (Pangjunant & Panthuvet, 2013). Hypertension patients, hence, should possess appropriate health promoting behavior with self-value

and full awareness of potentially hazardous health environments. Such health promoting behavior modifications should be practiced consistently as an integral part of a healthy life style. This can eventually lower health issues and complications, which may lead to better overall well-being (Pender, 1996).

To understand how hypertension patients practice and maintain health promoting behavior, this study sought to investigate the level, perception, factors of perceived self-efficacy, outcome expectations, and self-care behavior in 3 categories (nutrition, physical exercise, and stress management). This study also aimed to glean insights into public health issues in the communities where senior nursing university students were completing their nursing training. To achieve these aims, this study conducted a health community survey at Langkao and Saonoi Subdistrict Health Promotion Hospitals in Muak Lek District, Saraburi Province. This was carried out by the researchers with the help of nursing students. These hospitals were selected because it has been observed that there is a continuously increasing number of hypertension patients at these hospitals, who also suffered from other complications, including ischemic heart disease, myocardial infarction, paralysis and renal failure.

The researchers adapted Bandura's Self-Efficacy Theory (1997) to understand the perceived self-efficacy, outcome expectations and self-care behavior. These are the guidelines to promoting holistic health behavior to prevent potential complications and disability.

Objectives

1. To study the level of perceived self-efficacy, outcome expectations and self-care behavior of hypertension patients treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals in Muak Lek District, Saraburi Province.
2. To compare the level of perceived self-efficacy, outcome expectations and self-care behavior of hypertension patients treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals.
3. To analyze factors of perceived self-efficacy and outcome expectations influencing self-care behavior of hypertension patients treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals.

Hypotheses

1. Level of perceived self-efficacy, outcome expectations and self-care behavior of hypertension patients treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals in Muak Lek District, Saraburi Province will be very high.
2. There is no difference in levels of perceived self-efficacy, outcome expectations and self-care behavior of hypertension patients treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals.
3. Factors of perceived self-efficacy and outcome expectations influencing self-care behavior of hypertension patients treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals.

Scope of Research

1. Population Group
   The population group consisted of patients who were diagnosed and treated with high blood pressure but without any infectious disease at Langkao and Saonoi Subdistrict Health Promotion Hospitals in Muak Lek District, Saraburi Province, a total of 62 participants.
2. Sample Group
   The sample group consisted of patients who were diagnosed with and treated for high blood pressure (26% were male and 74% were female) and who were without any infectious disease at Langkao and Saonoi Subdistrict Health Promotion Hospitals in Muak Lek District, Saraburi Province. There was a total of 62 participants.

Research Variables

Independent Variables

1. Perceived self-efficacy in 3 categories
   - P1 = Nutrition
   - P2 = Physical Exercise
   - P3 = Stress Management
2. Outcome expectations in 3 categories
   - E1 = Nutrition
   - E2 = Physical Exercise
   - E3 = Stress Management

Dependent Variable: Self-care behavior

Research Framework

The authors adopted the Self-Efficacy Theory by Bandura (1997) as a framework for this study as shown in Figure 1.

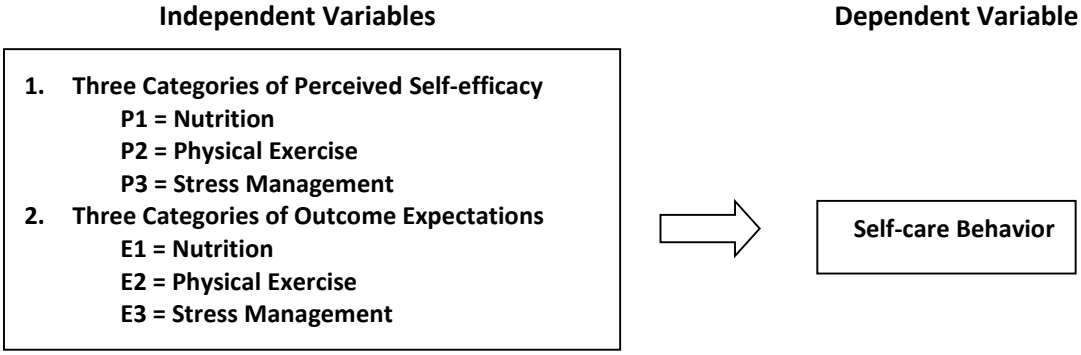

Figure 1. Research Framework

Research Methodology

This research is a survey study: 1) to investigate the level of perceived self-efficacy, outcome expectations and self-care behavior of hypertension patients treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals in Muak Lek District, Saraburi Province; 2) to compare the levels of perceived self-efficacy, outcome expectations and self-care behavior of hypertension patients treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals; 3) to study factors of perceived self-efficacy and outcome expectations influencing self-care behavior of hypertension patients treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals.

1. Population Group and Sampling Group

Population Group

Population refers to both male and female hypertension patients with blood pressure < 160/100 mmHg treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals Muak Lek between June 2014 and January 2015, for a total of 62 subjects.

Sampling Group

The authors applied a purposive sampling method for a total of 62 subjects.

2. Data Collection Tools

The authors obtained permission to adopt the questionnaire utilized by Charernyuth (2009) entitled “Effectiveness of Health Promoting Program for Hypertension Patients” in this study. The data collection questionnaire for hypertension patients consisted of 4 sections:

Section 1: General information about the population group consisting of gender, age, marital status, education level, occupation, domicile, family status, income, medical history of hypertension patient's family, treatment expense, health checkup, smoking and alcohol consumption

Section 2: Perceived self-efficacy in promoting hypertension patient's health, consisting of nutrition, physical exercise and stress management on a five-point rating scale questionnaire with a format of positive response questions (most, very, moderate, little, least).

Section 3: Outcome expectations in promoting health of hypertension patients consisting of nutrition, physical exercise and stress management on a five-point rating scale questionnaire (strongly agree, agree, somewhat agree, disagree, strongly disagree).

Section 4: Behavior of nutrition, physical exercise and stress management of hypertension patients consisting of frequency of self-care behavior in promoting health on a five-point rating scale (routinely, very often, often, sometimes, rarely).

Criteria and Interpretation

The criteria and interpretation of the perceived self-efficacy, outcome expectations and self-care behavior is calculated by using class interval (Rhitchareon, 2002) and divided into five levels: a) the highest level – average score = 4.21-5.00, b) high level – average score = 3.41-4.20, c) intermediate level – average score = 2.61-3.40, d) low level – average score = 1.81-2.60, and e) the lowest level - average score = 1.00-1.80.

Psychometric Evaluation of the Questionnaire

Reliability testing of the questionnaire, which is composed of items regarding perceived self-efficacy, outcome expectation and self-care behavior, was tested with hypertension patients at Mitraparp Subdistrict Health Promotion Hospital, Muak Lek District, Saraburi Province. This patient group of 30 offers similar research criteria to our study. Results were calculated as a reliability coefficient using Cronbach's Alpha Coefficient Method. The reliability of each section, which are perceived self-efficacy, outcome expectation, and self-care behavior, was 0.92, 0.94, and 0.88, respectively. The total reliability of this questionnaire was 0.96.

3. Data Analyses

3.1 Statistical analysis of questionnaire respondents in frequency and percentage

3.2 Statistical analysis as indicated under **Objective 1** in Mean ($\bar{x}$) and Standard Deviation (S.D.)

3.3 Statistical analysis as indicated under **Objective 2** by Independent Samples Test (Statistical significance of the means of two independent groups - hospitals)

3.4 Statistical analysis as indicated under **Objective 3** by Stepwise-Multiple Regression Correlation Coefficient as follows:

Dependent Variable: Self-care Behavior of Hypertension Patients

Independent Variables: Selected Factors of All 6 Categories of Perceived Self-efficacy and Outcome Expectations

Three Categories of Perceived Self-efficacy

P1 = Nutrition

P2 = Physical Exercise

P3 = Stress Management

Three Categories of Outcome Expectations

E1 = Nutrition

E2 = Physical Exercise

E3 = Stress Management

Results

1. Demographics of Questionnaire Respondents

There were 62 respondents from Langkao and Saonoi Subdistrict Health Promotion Hospitals. Of these, 74% were female, 61.29% were 60 years old and above, 43.59% were unemployed, 37.10%, were elementary school graduates, inadequate and adequate incomes were 41.90% and 40.30% respectively, as shown in Table 1.

Table 1. Demographics of Questionnaire Respondents (Sample N=62)

Demographic	Number	Percent
1. Gender		
Male	16	25.80
Female	46	74.20
2. Age		
18 - 35 years old	1	1.60
36 - 59 years old	23	37.10
60 years old and above	38	61.30
3. Hypertension Patients from Subdistrict Health Promotion Hospitals		
Langkao Subdistrict Health Promotion Hospital	31	50.00
Saonoi Subdistrict Health Promotion Hospital	31	50.00
4. Occupation		
Hired Employees	23	37.10
Agriculture	7	11.30
Merchant	5	8.10
Unemployed	27	43.50
5. Education Level		
No School	11	17.70
Elementary	45	72.60
High School	3	4.80
Vocational/Diploma	1	1.60
Bachelor Degree	0	0.00
Higher than Bachelor Degree	2	3.20
6. Living Income Level		
Inadequate	26	42.00
Adequate	25	40.30
Adequate with Some Savings	11	17.70

2. The perceived self-efficacy, outcome expectations and self-care behavior (nutrition, physical exercise, and stress management) scores for hypertension patients treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals ranged from the mid-high to high levels. Independent sample t-test of patients treated at these two facilities shows no significant difference in almost all categories except 1) Patients treated at Langkao facility (Mean = 3.89) showed higher means than at the Saonoi facility (Mean = 3.38) of perceived self-efficacy in physical exercise, with $p < 0.05$; and 2) Patients treated at Saonoi facility (Mean = 4.41) show higher means than at the Langkao facility (Mean = 4.03), with $p < 0.05$, as shown in Tables 2, 3, and 4.

Table 2. Statistical Data and Category Interpretation of Hypertension Patients

Category	N	$\bar{x}$	S.D.	Interpretation
1. Perceived Self-efficacy	62	3.65	0.62	High
2. Outcome Expectations	62	4.09	0.45	High
3. Self-care Behavior	62	3.53	0.64	High
Totals	62	3.76	0.50	High

N = Sample Size; $\bar{x}$ = Mean; S.D. = Standard Deviation

Table 3. Statistical Data and Sub-category Interpretation of Hypertension Patients

Category	Langkao Hospital		Saonoi Hospital		Totals	
	$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.
1. Perceived Self-efficacy						
1.1 Nutrition	3.40	0.67	3.71	0.72	3.56	0.70
	Intermediate		High		High	
1.2 Physical Exercise	3.89	0.64	3.38	1.24	3.63	1.01
	High		Intermediate		High	
1.3 Stress Management	3.73	0.72	3.78	0.85	3.76	0.78
	High		High		High	
2. Outcome Expectations						
2.1 Nutrition	4.03	0.45	4.41	0.49	4.22	0.51
	High		Highest		Highest	
2.2 Physical Exercise	4.01	0.53	3.84	1.01	3.93	0.80
	High		High		High	
2.3 Stress Management	4.07	0.45	4.21	0.69	4.14	0.58
	High		Highest		High	
3. **Self-care Behavior**						
3.1 Nutrition	3.09	0.58	3.10	0.63	3.10	0.60
	Intermediate		Intermediate		Intermediate	
3.2 Physical Exercise	3.91	0.65	3.53	1.11	3.72	0.92
	High		High		High	
3.3 Stress Management	3.83	0.73	3.71	0.84	3.77	0.78
	High		High		High	
Total	3.77	0.44	3.74	0.57	3.76	0.50
	High		High		High	

Table 4. Independent Sample t-test Results of Hypertension Patients Treated for Perceived Self-care, Outcome Expectations and Self-care Behavior

Category	Langkao Hospital		Saonoi Hospital		Results	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	t-value	Sig.
1. **Perceived Self-care**						
1.1 Nutrition	3.40	0.67	3.71	0.72	-1.74	0.087
1.2 Physical Exercise	3.89	0.64	3.38	1.24	2.06*	0.044
1.3 Stress Management	3.73	0.72	3.78	0.85	-0.27	0.784
2. **Outcome Expectations**						
2.1 Nutrition	4.03	0.45	4.41	0.49	3.18*	0.002
2.2 Physical Exercise	4.01	0.53	3.84	1.01	0.86	0.394
2.3 Stress Management	4.07	0.45	4.21	0.69	-0.96	0.341
3. **Self-care Behavior**						
3.1 Nutrition	3.09	0.58	3.10	0.63	-0.06	0.950
3.2 Physical Exercise	3.91	0.65	3.53	1.11	1.62	0.111
3.3 Stress Management	3.83	0.73	3.71	0.84	0.60	0.552
Totals	3.77	0.44	3.74	0.57	0.25	0.803

*$p < 0.05$

3. Stepwise-Multiple Regression Correlation Coefficient analysis of 6 factors 1) perception of nutrition, 2) perception of physical exercise, 3) perception of stress management 4) outcome expectation of nutrition, 5) outcome expectation of physical exercise, and 6) outcome expectation of stress management revealed their influence on hypertension patients at Langkao and Saonoi Subdistrict Health Promotion Hospitals. These 6 factors can explain 95% of the variations in self-care behavior of hypertension patients, with $p < 0.05$. Also, perception of stress management is the only factor that can predict 61.9% of variations in patients' self-care behavior, with $p < 0.05$, as shown in Table 5.

Table 5. Stepwise-Multiple Regression Correlation Coefficient Analysis of the Effect of Perception of Self-care and Outcome Expectations to Self-care Behavior of Hypertension Patients

Model	Factor	R^2	F	Coefficient				
				Constant	B	Beta	t-value	Sig.
1	• Perception of Stress Management (P3)	0.619	97.48*	1.85	0.051	0.787	9.37*	0.000
6	• Perception of Stress Management (P3)	0.950	173.95*	0.12	0.184	0.285	6.18*	0.000
	• Outcome Expectation of Physical Exercise (E2)				0.116	0.185	4.05*	0.000
	• Perception of Nutrition (P1)				0.173	0.241	6.89*	0.000
	• Perception of Physical Exercise (P2)				0.239	0.482	9.19*	0.000
	• Outcome Expectation of Physical Exercise (E1)				0.140	0.141	3.83*	0.000
	• Outcome Expectation of Stress Management (E3)				0.100	0.115	2.71*	0.009

*$p < 0.05$

R: Multiple correlation coefficients; **F** statistics or **F** ratio; **B**: Regression Coefficients; **Beta**: Standardized coefficients; **Sig.** labels the two-sided P values or observed significance levels for the t statistics

Discussion

Perceived self-efficacy, outcome expectations and self-care behavior in 3 categories (nutrition, physical exercise and stress management) of hypertension patients treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals were at intermediate to the highest levels overall. An analysis of the Independent Samples t-test of subjects from these two hospitals reveals no significant differences. All 6 aspects: 1) perception of stress management, 2) outcome expectation of physical exercise, 3) perception of nutrition, 4) perception of physical exercise, 5) outcome expectation of nutrition, and 6) outcome expectation of stress management were influenced by patient self-care behavior. The combined 6 aspects explained and predicted up to 95% of the variance in self-care behavior of hypertension patients, with $p < 0.05$. The best predictor was perception of stress management, which explained 61.90% of the variance with $p < 0.05$. This was due to past health care events held at both hospitals related to perceived self-efficacy, outcome expectation and self-care behavior. There were hypertension health care exhibits highlighting facts, causes, symptoms/types, complications, diagnosis/tests, treatment and self-care.

Dialogues and discussions were also conducted with both groups of hypertension patients (symptomatic group with complications, and under control high blood pressure group without complications). At these sessions, medical staff and nurses from both hospitals emphasized the importance and benefits of self-care, knowledge and skills in healthy nutrition, diet, and weight control. Patients participated in group discussions, asked questions, and took materials home for review and practice. Medical staff also made house calls to follow-up on self-care behavior, and rotated to visit all hypertension patients treated at both hospitals.

The results of the hypertension patients being studied from these two hospitals are similar in all aspects based on the pre-set guidelines. This correlates to the research of Jongpakdee (1998) who studied health promotion for patient in self-care behavior at Lampoon Hospital and revealed comparable results with $p < 0.05$. Saijai (2002) also reported that health promotion programs for seniors at Muang District, Nonthaburi Province showed better results of perceived self-efficacy, outcome expectation, and behavioral promotion of nutrition, physical exercise, and stress management after the experiment with $p < 0.05$.

Conclusion

Results based on the hypothesis of perceived self-efficacy, outcome expectations and self-care behavior of hypertension patients treated at Langkao and Saonoi Subdistrict Health Promotion Hospitals in Muak Lek District, Saraburi Province were from the intermediate to the highest level overall. There was no significant difference in terms of perceived self-efficacy, outcome expectations and self-care behavior in hypertension patients treated at both hospitals. Perceived self-efficacy and outcome expectations are influential for hypertension patients treated at both hospitals in regards to 6 aspects: 1) Perception of stress management; 2) Outcome expectation of physical exercise; 3) Perception of nutrition; 4) Perception of physical exercise; 5) Outcome expectation of nutrition; and 6) Outcome expectation of stress management. Their influence on the self-care behavior of hypertension patients treated at both hospitals shows predictive value of 95%, with significance at the level $p < 0.05$. The best predictive factor was perception of stress management, with this factor alone showing predictive value of 61.90%, $p < 0.05$ in self-care behavior of hypertension patients.

Recommendations

1. **From Our Study**

Both hospitals should routinely offer health-related activities in 3 areas: nutrition, physical exercise and stress management. Information should be demonstrated with hands-on practice whenever possible. Physical exercise should not be too vigorous in order to avoid injury.

2. **For Future Research**

Future research should adopt perceived self-efficacy theory with social/community support to promote health in hypertension patients. Caretakers play an important role in assisting hypertension patients to participate in on-going activities by providing transportation; while at home, they help oversee and assist with nutrition, exercise, and stress management including utilization of health information regarding high blood pressure.

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