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Self-Care Program for Thais with Uncontrolled Hypertension Leading to Pre-Stroke

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Abstract- This study aimed to determine the effectiveness of a self-care program for Thais with uncontrolled hypertension leading to pre-stroke. The program was based on self-care behavior and blood pressure control. The samples were 98 purposively selected patients with uncontrolled hypertension receiving care at a hospital in the central part of Thailand. The samples were randomly assigned to either the experimental (n = 50) or control group (n = 48). Those in the experimental group received a 24-week self-care program and routine care, while those in the control group received only routine care. The self-care program consisted of education sessions that were used to increase the samples' knowledge about, and ability to carry out self-care for controlling their blood pressure. Data were collected via interview-administered questionnaires and blood pressure measurements, before and after participation in the program. Data were analyzed utilizing descriptive statistics; Chi-square; Mann-Whitney U test; and, independent t-test. Results indicated the experimental group, 24 weeks after completion of the program, had a significantly higher mean rank of self-care behavior regarding medication-taking, dietary control, exercise, stress management, and risk behavior avoidance, as well as significantly lower mean blood pressure levels than the control group. Findings suggest the program was effective in enhancing samples' knowledge to control their blood pressure and prevent a complication as pre-stroke.

Index Terms- Hypertension; Self-Care; Stroke.

I. INTRODUCTION

Individuals with uncontrolled hypertension need self-care ability to manage the symptoms and lifestyle changes inherent in living with a chronic condition. [1] They need to learn to appropriately manage their blood pressure through lifestyle modifications and take arranged controlled hypertension medications. [2] However, poor adherence to long-term therapy has been reported among Thais with uncontrolled hypertension. [3-4] Persons with uncontrolled their blood pressure are unsuccessful to understand the need to take medications. [5] Thus appropriate knowledge and skills appear necessary for them to perform self-care. Healthcare providers can assist patients in control of their disease by helping them acquire knowledge and skills to engage in self-care. [6] Therefore, the purpose of this study was to determine the effectiveness of self-care program among Thais with uncontrolled hypertension leading to pre-stroke. Two specific hypotheses were formulated for this study.

1. Thais, with uncontrolled hypertension, who have received a self-care program plus routine care, will have higher scores regarding self-care behavior than those, who have received only routine care.
2. Thais, with uncontrolled hypertension, who have received a self-care program plus routine care, will have lower levels of diastolic blood pressure than those, who have received only routine care.

II. RESEARCH ELABORATIONS

A. Design

An experimental, randomized, control-trial design was used in the study.

B. Ethical Considerations

Approval to conduct the study was granted by the human subjects committee. All potential samples were informed about the purpose, potential risks and benefits and confidentiality and anonymity. All samples who consented to participate were asked to sign a consent form.

C. Setting

The study took place in a hospital in central Thailand.

D. Samples

Potential samples consisted of Thais, registered at an out-patient clinic of a hospital, who were: diagnosed with hypertension; and, able to attend 24-week self-care program. The inclusion criteria included the following: 1) samplets ability to hear and speak, 2) willingness to participate in the 24-week self-care program. 3) having diastolic blood pressure levels more than 90 mmHg. The exclusion criteria included the following: 1) the samples who had severe complications such as heart diseases, stroke and the final stages of renal failure, 2) persons who attended the group meeting less than 24 weeks, and 3) having cognitive impairments. Potential samples were identified and asked to participate in the study, by a registered nurse, at the hospital, who was aware of the study's purpose and inclusion criteria. The initial 98 potential samples, who volunteered and met the inclusion criteria, completed the study. 50 persons were randomly assigned to the experimental group and 48 persons were randomed to the control group.

The samples in the experimental and control groups were, respectively: female (n = 29; 57% and n = 32; 66.2%); average age 62.2 years (range = 46-75 years) and 61.9 years (range = 40-79 years; had an educational level of primary school (n = 39; 77% and n = 36; 74.9%); engaged in household work (n = 32; 63% and n = 27; 55.3%); and, had a monthly income of $60 to $120 USD (n = 33; 65%) and $50 to $100 USD (n = 34; 70%). Those in the experimental group had hypertension an average of 7.7 years (range = 1-21 years), while those in the control group had hypertension an average of 6.86 years (range = 1-22 years).

E. Measurements

Data gathered involved the use of:

The Personal Information Questionnaire (PQ) comprised 6 checklists-questions asking about samples' gender, age, education level, occupation, income, and duration of hypertension.

The *Self-Care Behavior Questionnaire (SQ)* contained 14 open-ended questions designed to measure each sample's ability to perform medication-taking, dietary control, exercise, stress management, and risk behavior avoidance. The score could range from 0 to 3. A higher score indicated a more developed level of self-care behavior for blood pressure control. A reliability coefficient for the *SQ* was 0.76

F. Procedure

One week prior to the start of the study, pre-test data were obtained, for each sample, via administration of the: *PQ*, *SQ* and two diastolic blood pressure measurements. The questionnaires were verbally administered, individually, to each sample in the out-patient clinic of the hospital. The entire process took approximately 30 minutes.

The experimental group samples were provided, when they had their pre-test data collected, a written time and date schedule for their assigned sessions of the self-care program which designed by the researcher based on Orem's Self-Care Theory [7] and Cognitive-Behavioral Therapy. [8]

The program included 24 weeks of motivation to engage in daily self-care related to medication-taking, dietary control, exercise, stress management, and risk behavior avoidance. Those in the control group did not receive the schedule, since they did not participate in the program. 24 weeks after the experimental group completed the self-care program, post-test data, were collected, using the same procedure used to collect the pre-test data, from the experimental and the control group samples. Thereafter, those who had been assigned to the control group were invited to participate in the self-care program.

G. Data analysis

Descriptive statistics were used to analyze the demographic characteristics and calculate the instruments' scores. Chi-square and the Mann-Whitney U test were used to evaluate differences in demographic characteristics between the experimental and control groups. Because knowledge of self-care behavior scores violated the assumption of normal distribution, and it was measured at the ordinal level, the Mann-Whitney U test was used for testing hypothesis 1. Hypothesis 2. was tested using the independent t-test. This was done because the diastolic blood pressure, measured at the ratio level, passed the assumption of normality and homogeneity of variance using the Shapiro-Wilk test and Levene's test, respectively.

III. RESULS

As shown in Table 1, prior to implementation of the self-care program, significant differences were found between the experimental and control group 24 weeks after the experimental group completed the self-care program.

Table 1: Self-care behavior between experimental and control groups

Variable	Pre-Post Test	Mean Rank		Z	P-Value
		Experimental Group (N=50)	Control Group (N=48)		
Self-care Behavior					
Medication taking	Pretest	48.99	50.05	-.212	.834
	Posttest	55.88	42.57	-2.609	.010
Dietary control	Pretest	53.42	45.24	-1.596	.112
	Posttest	56.04	42.39	-2.563	.011
Exercise	Pretest	51.86	46.93	-.921	.359
	Posttest	59.24	38.92	-3.695	.002

Stress management	Pretest	49.74	49.24	-.154	.879
	Posttest	50.00	48.96	-1.044	.298
Risk behavior avoidance	Pretest	48.55	50.97	-.573	.568
	Posttest	55.25	43.25	-2.551	.012

*p < .01
Z = Mann-Whitney U test

No significant differences in diastolic blood pressure between the experimental and control groups were found prior to the self-care program. However, the diastolic blood pressure of the experimental group was found to be lower than those of the control group after completion of the program (Table 2).

Table 2: Mean scores in diastolic blood pressure between experimental and control groups

Variables	**Pre-Post Test**	**Mean Rank**		**t**	**P-Value**
		Experimental Group (N=50)	**Control Group (N=48)**		
Diastolic blood pressure	Pretest	93.15	93.61	.746	.459
	Posttest	80.56	89.67	-5.50	.002

*p < .01
t = Independent t-Test

IV. CONCLUSIONS

The self-care program was effective in improving of self-care behavior and diastolic blood pressure control in Thais with uncontrolled hypertension. The findings are congruent with prior findings regarding the effectiveness of an intervention program on knowledge of hypertension, [9] self-care behavior in medication taking [10], exercise [11] and blood pressure control. [12] During the program, the samples in experimental group misunderstandings about hypertension and self-care experiences were identified and corrected via use of the sharing experience with one another regarding success. This appeared to help motivate and enhance self-confidence to perform daily self-care. [13] However, no significance differences between the experimental and control groups regarding stress management and risk behavior avoidance. This may be because prior to the self- care program, most samples in both groups had high scores in their self-care behavior. The self-care program also provided specific knowledge, skills and motivation to help those in the experimental group, through active participation in self-care, identify problems, and find possible solutions. Thus, the samples in the experimental group improved their self-care behavior and diastolic blood pressure control 24 weeks after completion of the program and recommended the program be offered to others with uncontrolled hypertension.

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