

Tertiary Prevention of Hypertension Through Empowerment Health Behavior of Ambulatory Patients at Selected Primary Care Units of Nakhonratchasima Province, Thailand

Bundit Wannaprapan, Wirat Pansila, Chalermopol Tansakul and Frank-Peter Shelp
Faculty of Public Health, Mahasarakham University, 44150 Kuntaravichai District,
Mahasarakham Province, Thailand

Abstract: Incidence of hypertension has remained relatively high in Nakhonratchasima province and still being top priority chronic disease of provincial health problems. The quasi-experimental research pre-test, post-test two groups design was conducted for this research. Tertiary prevention of hypertension through empowerment health behavior was objective for improve knowledge about and understand, health belief, practice of life-style modification and decrease blood pressure. The empowerment process intervention was applied in hypertensive patients of experimental group those were selected by purposive sampling and matching technique with the control group those were 40 subjects in each group. Data was collected from the experimental group at pre-test, post-test immediately after the end of the 4 days intervention program, after 6 months at follow up and in the control group at pre-test and post-test after 6 months later. The data were analyzed by using a statistical package, descriptive statistics, paired t-test and in dependent t-test. The results indicated that the mean scores of knowledge about and understand, health belief and practice of life-style modification at immediately the 4 days intervention and post-test 6 months were significantly higher than those at pre-test and control group ($p < 0.001$). The mean scores of systolic and diastolic blood pressure in experimental group at immediately the 4 days intervention and post-test 6 months were significantly lower than those at pre-test and control group ($p < 0.001$). For conclusion, the 4 days empowerment process intervention that improve health behavior for control blood pressure. Thus, the hypertensive patients should be followed up continuously and must receive proper health behavior program for sustainable.

Key words: Tertiary prevention, hypertension, empowerment health behavior, ambulatory patients, primary care units

INTRODUCTION

Hypertension is usually asymptomatic but can cause serious complications which greatly contribute to patient morbidity such as stroke, heart failure, renal failure, retinopathy and myocardial infarction and finally can cause death. Many patients discontinue their medications during the 1st year of therapy often because they do not recognize the importance of their treatment. The overall Thai Health Survey in 2004 indicated that about 10 million's Thais are suffering from hypertension and the prevalence of the disease increased 4 times since, 1991 (Ekachampaka and Wattanamano, 2008). The policy for controlling hypertension nationwide requires screening of suspected cases and quality of care for hypertensive patients but in reality screening of suspected cases in communities was not implemented in covering the whole population and only was confined to passive case finding

by health care providers such as primary care unit, hospital or private care units and active case finding was not implemented seriously.

A pre-survey had been conducted including 60 hypertensive patients being under treatment by physicians of the primary care unit at Kosumpisai hospital, Mahasarakham province and the Muang District of the Nakhonratchasima province prior to this investigation. The aim was to detect problems in dealing with hypertension and included the use of a questionnaire, focus group discussion and in-depth interviews based on the precede-proceed framework and Health Belief Model. Results of this survey showed that predisposing, enabling and reinforcing factors from the pre-survey data indicated that hypertensive patients who were target population had moderate percentage of any variables, especially showed those health belief in the possibility to influence the course and complication of

hypertension consist of perceived susceptibility, perceived severity, perceived benefits, perceived barriers, hypertension control's proper behavior and from informal interviewed indicated that they would like to regular meeting from health worker at their home for comment in other information and should promote to any person who are risk of hypertension in all age to check or screen blood pressure before severe symptoms may occur.

So, it can affect a patient's quality of life and well-being if the blood pressure is not controlled or cannot be maintained at a normal level.

Empowerment refers to the ability of people to gain a better understanding and control over personal, social, economic and political forces in order to take actions to improve their situation (Israel *et al.*, 1994). Empowerment through a group process might change individuals' behavior and might be appropriate for addressing health problems. Thus to ameliorate hypertension, group process activities are a suitable mean which is congruent with the empowerment process Kieffer (1983) The process of empowerment is to promote positive health behaviors in individuals.

It is a transactional process which involves an individual relationship with others in order to stimulate a collaborative effort, strength, the development of abilities and important process for tertiary prevention of hypertensive patients in this research. The researcher as a public health officer is interested in developing an empowerment model by using the group process approach for a group of hypertensive patients. The purpose is to improve the patients' health behavior and to strengthen their ability for self-care and their blood pressure. The ultimate goal is to sustain a change in health behavior among hypertensive patients in order to enable them to control the level of their blood pressure. The results of this research will be beneficial and appropriate to be applied to other groups suffering from chronic diseases.

MATERIALS AND METHODS

The quasi-experimental research pre-test, post-test two groups design was conducted for this research during October 2008 to July 2009. The empowerment process intervention followed Gibson (1991)'s conceptual of firstly, discovering reality (stage of participation of individual and exploration), second: critical reflection (stage of collaboration and mutual supportive problem solving), third: taking charge (stage of developed organization) and fourth: holding on (stage of commitment). There were 20 activities during the 4 days intervention which sequentially served to improve know

about and understand the implication of suffering from hypertension, health belief in the possibility to influence the course of hypertension, health life style modification and blood pressure control of hypertensive patients in the experimental group.

The target population in the experimental and control group were 40 hypertensive patients in each group who were selected by purposive sampling from the primary care unit in Muang district, Nakhonratchasima province. The subjects had mild to moderate hypertension (140/90-180/110 mm Hg) without complications and history of the patients indicated no >10 years of hypertension. Subjects of the two groups were matched by sex, age (35-59 years) and group of medication prescribed, ability to communicate well and willingness to participate in the 4 days empowerment process intervention and to continue to the end of research. The empowerment process intervention was held at the experimental group.

Data collection was done by interviewing using questionnaires developed by the researcher. The questionnaire had two parts, the first: general information, second: know about and understand the implication of suffering from hypertension, health belief in the possibility to influence the course of hypertension and health life-style modification and blood pressure control.

The questionnaire was examined for content validity by six experts. After the questionnaire was improved and corrected following the suggestions of the six experts and research abridgement, the questionnaire was tested for reliability. The Cronbach's Alpha Coefficient Method of Rosenthal and Rosnow was used to assess reliability. The coefficient of the knowledge about and understand part of the questionnaire was 0.87. The coefficient of the health belief of hypertension part of the questionnaire was 0.89.

The coefficient of the practice of health life-style modification part of the questionnaire was 0.84. Data was collected from the experimental group at pre-test, post-test immediately after the end of the 4 days intervention program and after 6 months at follow up. Data were collected from the control group at pre-test and post-test after 6 months later as shown in Fig. 1. The data were analyzed by using a statistical package, descriptive statistics, paired t-test and independent t-test. Paired t-tests applied to examine the differences in their knowledge, belief, practice to lifestyle modification of hypertension, between pre-test and post-test as total 6 months for follow up. An independent t-test applied to examine the difference in the experimental group in comparison with the control group for post intervention for follow up.

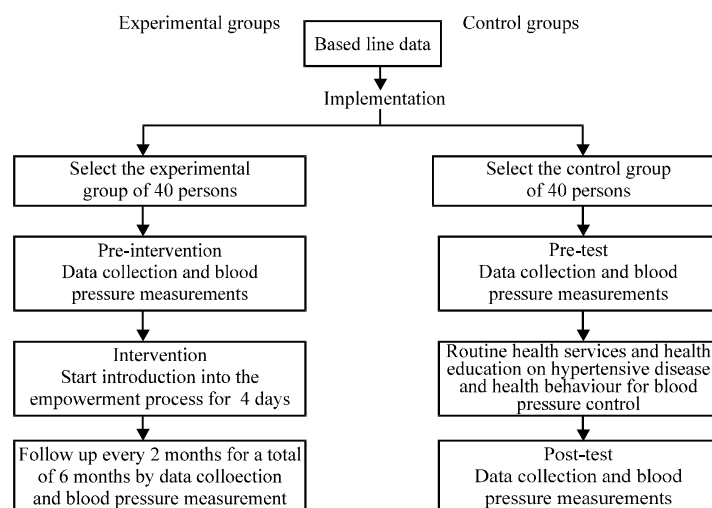


Fig. 1: Study flow diagram

RESULTS AND DISCUSSION

Patients in the experimental group were aged 45-49 years followed by those aged 50-59 years (27.5%) while the largest number (47.5%) of the patients in the control group were aged 45-49 years followed by those aged 50-59 years (32.5%). Few patients in the experimental group were single and this group had slightly higher level of education than the control group. The status in the family of the patients in the experimental group was similar to in the control group which were family members. The occupation of the largest number of the patients were housewife (Those were 55.0% in the experimental group and 62.5% in the control group).

The next of the patients were merchant 22.5% in the experimental group and 20.0% in the control group. More patients in the experimental group had enough income but no savings than in the control group. The percentages of those whose work mostly walking at work were the same (17.5%) in the two groups. Most of patients in both groups had dependent family members.

The result of a comparison of knowledge about and understand the implication of suffering from hypertension, health belief in the possibility to influence the course of hypertension and practice of health lifestyle modification between the experimental group and control group of hypertensive patients at the end of pre-test before the empowerment process intervention. An independent t-test was conducted in the analysis. The result described that there were statistically significant differences in perceived susceptibility and perceived benefits ($p < 0.05$).

There were not statistically significant differences in knowledge about and understand the implication of suffering from hypertension, perceived severity, perceived barriers of health belief in the possibility to influence the course of hypertension and practice of health lifestyle modification between the experimental group and control group of hypertensive patients as shown in Table 1.

The comparison's results of systolic and diastolic blood pressure of the hypertensive patients between the experimental group and control group at the end of pre-test before the empowerment process intervention. The independent t-test was employed in the analysis. The results indicated that there was no statistically significant difference in systolic and diastolic blood pressure between the experimental group and control group as shown in Table 2.

The results indicated that the hypertensive patients in the experimental group who had participated in the empowerment process intervention had significant lower systolic and diastolic blood pressure at immediately after the end of the 4 days intervention than at pre-test ($p < 0.001$). They were also had significant lower systolic and diastolic blood pressure at follow up 6 months after pre-test than at pre-test ($p < 0.001$). Furthermore, their systolic and diastolic blood pressure at follow up 6 months after the intervention was lower than at immediately after the end of 4 days intervention ($p < 0.001$) as shown in Table 3.

The mean different scores of knowledge about and understand the implication of suffering from hypertension of the hypertensive patients in the experimental group

Table 1: Comparison of knowledge about and understand the implication of suffering from hypertension, health belief in the possibility to influence the course of hypertension and practice of health lifestyle modification between the experimental group and control group of hypertensive patients at pre-test (n = 40)

Variables	Experimental groups		Control groups		t-value	df	p-value
	Mean	SD	Mean	SD			
Knowledge and understanding	7.45	1.57	7.65	1.060	-0.594	78.000	0.554
Health belief of hypertension							
Perceived susceptibility	34.33	6.78	36.93	3.050	-2.211	78.000	0.030*
Perceived severity	34.25	5.35	35.48	5.620	0.999	78.000	0.321
Perceived benefits	31.98	6.67	35.80	5.290	-2.841	78.000	0.006*
Perceived barriers	33.80	2.92	33.55	7.410	0.199	78.000	0.843
Practice of health lifestyle modification							
Changing in eating behavior	32.45	6.76	33.05	7.760	-0.368	78.000	0.714
Changing in physical activities	29.63	6.34	31.63	8.230	-1.217	78.000	0.227
Stress management	30.73	3.49	31.68	8.270	-0.669	78.000	0.505

Table 2: Comparison of systolic and diastolic blood pressure between the experimental group and control group of hypertensive patients at pre-test (n = 40)

Variables	Experimental groups		Control groups		t-value	df	p-value
	Mean	SD	Mean	SD			
Systolic blood pressure	160.33	7.55	161.28	6.45	-0.625	78	0.547
Diastolic blood pressure	91.70	2.99	93.00	3.43	-1.804	78	0.075

Table 3: Comparison of systolic and diastolic blood pressure between pre-test and post-test immediately the 4 days empowerment process intervention in the experimental group

Variables	Pre-test		Post-test immediately the 4 days empowerment process intervention		t-value	df	p-value
	Mean	SD	Mean	SD			
Systolic blood pressure	160.33	7.54	149.55	4.79	10.697	39	<0.001*
Diastolic blood pressure	94.63	5.26	89.10	3.56	9.940	39	<0.001*

*Significant difference

were higher than the control group at post-test after 6 months at follow up ($p < 0.001$). According to Purdey *et al.* (1994) empowerment occurs when people increase their capacity to act individually and with others to affect change. Empowerment contributes to improved new health behaviors and other personal changes.

Health behavior is personal attributes such as beliefs, expectations, motives, values, capacities, perception and other cognitive elements, personality characteristic including affective and emotional states, trait and overt behavior pattern, actions and habits that are related to health maintenance to health restoration and to health improvement. Capacities refers to knowledge and skills required for community functions related to health and well-being such as problem identification and resource utilization. The mean different scores of health belief in the possibility to influence the course of hypertension of the hypertensive patients in the experimental group were significantly higher than in the control group at post-test after 6 months at follow up ($p < 0.001$). The result of this study are contrary to Pensirinapa (1995) who found that the students in the experimental group which attended the empowerment education on smoking prevention program showed smoking attitude among the

student leaders had significantly and positively changed more than in the control group at post-test but at the follow up at 4 and 8 months, smoking attitude of the experimental group was significantly less improved than the control group.

The mean different scores of practice of health lifestyle modification and blood pressure control in the experimental group were significantly higher than in the control group at post-test 6 months at follow up ($p < 0.001$). The study was similar to many research studies which supported the results of this study. The study of Hongpanich (1993) indicated that the hypertension patients in the experimental group who received 3 group counseling intervention 3 times have significantly higher self-care practice than the comparison group ($p < 0.05$) those shown in Table 4.

The systolic blood pressure of hypertensive patients in the experimental group who participated in the empowerment process intervention had different mean scores which were significantly lower than the control group after 6 months at follow up ($p < 0.001$).

The diastolic blood pressure of the hypertensive patients in the experimental group who participated in the

Table 4: Comparison of knowledge about and understand the implication of suffering from hypertension, health belief in the possibility to influence the course of hypertension between the experimental group and control group of hypertensive patients at the end of post-test (n = 40)

Variables	Experimental groups		Control groups		t-value	df	p-value
	Mean	SD	Mean	SD			
Knowledge about and understand	16.63	0.57	8.53	1.52	31.470	78	<0.001*
Health belief of hypertension							
Perceived susceptibility	56.30	5.59	32.23	8.59	14.866	78	<0.001*
Perceived severity	55.58	5.14	34.00	7.24	15.365	78	<0.001*
Perceived benefits	54.75	5.25	31.90	6.79	16.831	78	<0.001*
Perceived barriers	53.55	5.98	31.6	9.00	12.813	78	<0.001*
Practice of health lifestyle modification							
Eating behavior	53.63	5.63	33.50	7.00	14.169	78	<0.001*
Physical activities	52.13	6.48	30.08	8.52	12.434	78	<0.001*
Stress management	51.00	6.19	30.58	8.65	13.082	78	<0.001*
Alteration of smoking habits	53.69	5.45	25.58	9.10	8.283	22	<0.001*
Alcohol intake	0.00	4.65	31.25	8.54	9.229	30	<0.001*

Table 5: Comparison of systolic and diastolic blood pressure between the experimental group and the control group at post-test 6 months (n = 40)

Variables	Experimental groups		Control groups		t-value	df	p-value
	Mean	SD	Mean	SD			
Systolic blood pressure	147.50	4.53	163.50	6.81	-12.370	78	<0.001*
Diastolic blood pressure	85.93	3.62	93.68	3.44	-9.820	78	<0.001*

*Significant difference

empowerment process intervention had different mean score which were significantly lower than control group after 6 months at follow up ($p < 0.001$) as shown in Table 5.

CONCLUSION

This research was a quasi-experimental pre-test, post-test two groups design, this aimed to examine tertiary prevention of hypertension through empowerment health behavior on increasing know about and understand the implication of suffering from hypertension, health belief in the possibility to influence the course of hypertension, health life style modification and decrease systolic and diastolic blood pressure of hypertensive patients in the experimental group.

The empowerment process intervention followed Gibson (1991)'s conceptual of firstly, discovering reality (stage of participation of individual and exploration), second: critical reflection (stage of collaboration and mutual supportive problem solving), third: taking charge (stage of developed organization) and fourth: holding on (stage of commitment). There were 20 activities during the 4 days intervention which sequentially served to improve know about and understand the implication of suffering from hypertension, health belief in the possibility to influence the course of hypertension, health life style modification and blood pressure control of hypertensive patients in the experimental group. The results of research were those increasing know about and

understand the implication of suffering from hypertension, health belief in the possibility to influence the course of hypertension, health life style modification and the blood pressure level of the subjects in the experimental group would decrease and would be under better control than that of the control group. Thus, the empowerment process intervention is effective and could be applied to other chronic disease for changing their health behaviors.

ACKNOWLEDGEMENTS

This research was supported by director and staffs of Disease and prevention control region 5 Nakhonratchasima province. Researcher would like to express his sincere thanks to them and the participants, researchers also would like to thanks those whom did not mention for their kind cooperation.

REFERENCES

- Ekachampaka, P. and N. Wattanamano, 2008. Thailand Health Profile 2005-2007. pp: 161-256. http://www.moph.go.th/ops/health_50/Cover1_e.pdf.
- Gibson, C.H., 1991. A conceptual analysis of empowerment. J. Adv. Nurs., 16: 354-361.
- Hongpanich, P., 1993. The effectiveness of health counseling on self-care behavior among hypertensive patients. M.Sc. Thesis, Faculty of Graduate Studies, Mahidol University.

- Israel, B.A., B. Checkoway, A. Schulz and M. Zimmerman, 1994. Health education and community empowerment: Conceptualizing and measuring perception of individual organization and community control. *Health Educ. Q.*, 21: 149-170.
- Kieffer, C.H., 1983. Citizen, empowerment: A development perspective. *Prevent. Hum. Ser.*, 3: 9-36.
- Pensirinapa, N., 1995. The effect of empowerment education on smoking prevention program for the secondary school students, Suphunburi Province. Doctor Thesis, Faculty of Graduate Studies, Mahidol University.
- Purdey, A.F., G.B. Adhikari, S.A. Robinson and P.W. Cox, 1994. Participatory health development in rural Nepal: Clarifying the process of community empowerment. *Health Educ. Q.*, 21: 239-343.