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Research Article,

Effectiveness of Public Health Volunteer Engagement Program in Home Care for Stroke Patients in Bo Thong District Chonburi Province, Thailand

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Abstract:

This research aimed to study the effectiveness of the Public Health Volunteer Participation Program in the home care of stroke patients.

Methods: This was quasi-experimental research; the samples consisted of 30 public health volunteers in each comparison and experimental group by simple sampling. The experimental group participated the Public Health Volunteer Engagement Program that consisted of 1) improving the environment at home and supporting the physiotherapy by increasing movement to improve the body balance, 2) Stress management and social support of stroke patients at home, 3) Taking care the nutritional status among stroke patients at home, 4) Following on a daily within 12 weeks by nurse and public health volunteer. Data were collected by using the knowledge interview form on stroke and care of stroke patients. Data were analyzed by using frequency, percentage, mean, standard deviation, pair-sample t-test, and independent-sample t-test.

Results: The results found that the knowledge average score and the home care practice score of the health volunteers were significantly higher than the comparison group ($p < 0.001$). When comparing the results before and after program implementation, the cerebrovascular disease care in public health volunteers were significantly higher than before program implementation. ($P < 0.001$).

Conclusion: The Public Health Volunteer Engagement Program in Home Care for Stroke Patients was effective. This program was suitable for promoting the public health team to care stroke patients at the community level.

Keywords: Public Health Volunteer, Post stroke, home visits, health workers at the community level

Introduction:

A stroke occurs when blood clots or broken blood vessels cut off the blood supply to the brain. Strokes can cause significant impairment in language, cognition, motor, and sensory skills. This is a leading cause of serious long-term disability. Recovering from a stroke of patients can support after the symptoms stabilize. (1) Beginning the recovery process as early as possible can increase chances of regaining affected brain and body function. (2) Systematically identifying stroke patients who are most likely to be at risk of a poor transition of care. The need to transfer a patient from hospital to home should be suitable considered. There are many the transition problems such as hospital overcrowding, lack of

appropriate services in the community and economic pressures.[3]

The treatment and rehabilitation of stroke patients should take place as quickly as possible to increase the survival of the patient. They should receive proper and continuous care when they are being discharged to home. [4]

Community health workers including nurses, public health professional and public health volunteer are part of interprofessional teams to support and improve stroke patients and caregivers. Especially, public health volunteer are an essential part of the Primary health care model as they link the community to the organized health system. The public health volunteer fulfill certain criteria and undergo training to fulfill their health promotion and disease prevention. There are problems of public health volunteer such as lacking of stroke education, availability of care and access-to-care issues for post stroke care. [5] Therefore, this research study interests in to study the effectiveness of the Public Health Volunteer Participation Program in the home care of stroke patients to improve the potential of public health volunteers for caring stroke patients.

Methods:

Population / sample

The population used in this research was public health volunteers. Registered with the Ministry of Public Health and lives in Bo Thong District Chonburi Province, 380 people select a simple sample using the method of drawing lots. This study is an experimental group and comparison group. The group sets the sample size from the opening of the table. Set the power of test at 0.80, set the confidence at .05 and the effect size of 0.60. The sample size to be studied was 30 persons they have not congenital disease, could read and write and willing to participate in the study.

The study Instrument

[1] Tools used to collect data include: Questionnaire for stroke knowledge and the practice of caring for stroke patients in terms of physical, diet, and record form of participation in care for stroke patients at home. The questionnaire on knowledge of cerebrovascular disease and home care for stroke patients consisted of 10 questions concerning stroke knowledge. Stroke care practice was divided into 3 areas: nutrition 10 items, physical rehabilitation 10 items, stress management and prevention 10 items. Eight complications by the questionnaire were created based on literature reviews and the use of the questionnaire of the Department of Mental Health was adjusted. All the tools were tested to determine the validity of the questionnaire. (Reliability) by bringing the updated questionnaire. To be tested with a sample (Try Out) by returning to test 30 public health volunteers, which are not the population used in the study. But has properties similar to the real population. To check the integrity of the language Then the questionnaire was analyzed to find the reliability value Alpha = 0.86.

[2] Research tools in this study were learning activities plan and home care for stroke patients. of public health volunteers/health promotion programs and participation in the care of stroke patients in the community.

Study procedure

The research project certifies the conduct of research in humans from the Human Research Ethics Committee, Faculty of Medicine Thammasat University received a certificate number MTU-EC-ES-0-110/63. It is part of a research study on the outcomes to care for stroke at home by coordinating the participation of family care team and the community. The researcher contacted head of Botong district health office, Beung taku, Prongket, Bankaoyai, Thadtong municipality and Pluangthong as local government to explain the purpose, process, study design and setting management health promotion programs and participation in the care of stroke patients in the community Thadtong municipality was appropriated place for this research. The researcher explained the purpose, procedure and the detail of the research after that collected the data by questionnaire in the experimental and comparison group. During the period of the study 4 weeks. The activities were consisted of three activities and each activity was spaced 1 week. Questionnaire and follow-up document for stroke patient care at home of public health volunteers with community health workers were collected at the end of the study, the fourth time. Overall, the 4-week study was as follows; Activity 1

"Knowledge of Stroke disease Rehabilitation care for stroke patients, and nutrition knowledge of mental health care among stroke patients at home. The total baking time was 180 minutes. For diary, the researcher explained food consumption following the proportion of nutrition such as ladle, table spoon, and teaspoon. Moreover, fruit consumption, for example, one orange equal four rambutans. For stroke rehabilitation and proper physical activity such as bathing, walking, eating, swallowing and defecation according to the program, physical and daily rehabilitation practice activities prepared by the Ministry of Health. This activity was used for participants as well as appropriate stress management activities. Pictures and VDO were used as stress management tools to reduce stress. This activity was a brainstorming session for participants on learning and understanding from activity 1 at last week to encourage health volunteers to help and support stroke patients at home. Nutritional activities were categorized by color, for example red (lowest consumption), yellow (sometimes consumption), and green (frequency consumption). Participants also split groups and worked together to analyze food images by color and incorporating the creation of a healthy menu based on a suitable food model for stroke patients, such as reducing dietary fat intake and sodium foods. Refrain from smoking and drinking alcohol, including practicing blenderized recipes. The overall of the activity about 180 minutes. The stress management activity was a problem-solving exercise program created by the researcher based on the COPE concept of Houts et al. (1996). This concept consisted of creativity, optimism, planning, and gain. Receiving information from experts and sources (expert information) that health volunteers share their views with staff who specialize in taking care of the patient's health. For activity 3"Eliminating Problems and Reducing Complications", an analysis of health problems in stroke patients. Prevention of pressure wounds and Preventing the sticking including prevention of recurrent stroke. In the activity, there was a practice of looking at the characteristics of pressure wounds and practice assessing wounds in managing differences that may be stuck in the joints from cerebrovascular disease. The participants spent a total of 180 minutes and they were given guidelines on how to care for stroke patients at home with community health workers. For the fourth activity, this was the last activity at 4 week.. The experimental group and the control group completed a questionnaire after the end of the program. The stroke knowledge scores, the practice of caring for stroke patients and the care of stroke patients with community health workers were analyzed by using frequency, percentage, mean, standard deviation. Data analysis by independent t-test and Paired sample t-test compared the difference in mean behavior scores in those at risk of hypertension, waist circumference, body mass index, blood pressure in the experimental and control groups before and after the program. A p-value < 0.05 was considered statistically significant.

Results:

For demographic data was indicated that gender among people participant predominantly remained female (73.3 % and 80.00%). The result of the two group comparisons was not significant differences (p-value = .17). The mean of age in the experimental group was 43.7 years old (S.D. = 9.51). The minimum of age was 35 years old and the maximum of age was 70 years old. The mean of age in the control group was 47.3 years old (S.D. = 9.78). The minimum of age was 35 years old and the maximum of age was 69 years old. The comparison of age was found that the most of the experimental and control group were between 35 to 50 years old (56.7% and 63.3%) while the majority of the control group were between 35 to 50 years old. The result was not significant differences (p-value = .57). For marriage status; 70 % of the experimental group and 83.3% of the control group were married. The comparison of the marriage status in two group was not statistically significant differences (p-value=.479). More than half of the experimental and control group reported obtaining less than primary education at 60.0% and 53.3%, respectively that was not significant differences (p-value=.25). For Occupational status of the experimental group, 20% was agriculture, 13.3% was employed and 6.7% was self-employed. For the control group, 31.7% was agriculture, 26.7% was employed and 3.3% was self-employed. The difference comparison between two groups were found that not significant differences (p-value=.25).The different comparison of Stroke Knowledge Scores between the experimental group and the control

group before and after the program implementation.

Before the program, the stroke knowledge and home care scores between the experimental group (11.04) and the control group (10.96) were not statistic significant. (P-value=.96). After the program, the average score of the stroke knowledge and taking care of stroke patients at home in the experimental group (18.86) was significantly higher than the control group (11.04) (p-value=0.0). The results were shown in Table 1.

Table1: The comparisons of stroke knowledge project and taking care of stroke patients at home between the experimental and control group.

	The experimental group (n=30)		The control group (n=30)		t-test	df	p-value
stroke knowledge project and taking care of stroke patients at home							
	Mean	S.D.	Mean	S.D			
Before program Implementation	11.04	8.71	10.96	8.22	0.46	58	0.96
After program Implementation	18.86	18.61	11.04	11.87	-11.61	58	<0.05*

* p-value < 0.05

Before the program implementation, the average score of the stroke care practice including physical, nutrition, and psychological in the experimental group were 22.06, 10.20, and 8.19, respectively while the average score of the stroke care practice in the control group were 21.11, 10.50, and 7.85, respectively. The comparison between the experimental group and the control group were not statistically significantly different (p-value= 0.24, 0.058, 0.76 and 0.43 respectively) (Table 2)

After the program implementation**,** the average score of the stroke care practice in the experimental group were 36.78, 18.69, and 17.66, respectively while the average score of the stroke care practice in the control group were 22.88, 10.98, and 7.86, respectively. The average score of the stroke care practice in the experimental group was significantly higher than the control group (p-value<0.05). The results were shown in Table 3.

Before the program implementation, the Barthel ADL index of stroke patients in the experimental group was 62.43 while the Barthel ADL index in the control group was 63.55. The comparison between the experimental group and the control group were not statistically significantly different (p-value= 0.64). After the program implementation**,** the Barthel ADL index of stroke patients in the experimental group was 74.14 while the Barthel ADL index in the control group was 65.54. The Barthel ADL index in the experimental group was significantly higher than the control group (p-value<0.05). The results were shown in Table 4.

Table 2. The comparison of stroke care practice scores between the experimental group and the control group before the program Implementation

Before program Implementation	The experimental group (n=30)		the control group (n=30)		t-test	df	p-value
	Mean	S.D.	Mean	S.D.			
Physical	22.06	6.18	21.11	6.08	1.17	58	.243
Nutrition	10.20	2.95	10.50	1.98	1.93	58	.058
Psychological	8.19	6.16	7.85	4.76	.30	58	.762

*** p-value < 0.05**

Table 3.The comparison of stroke care practice scores between the experimental group and the control group after the program Implementation

Before program Implementation	the experimental group (n=30)		The control group (n=30)		t-test	df	p-value
	Mean	S.D.	Mean	S.D.			
Physical	36.78	5.59	22.88	6.08	-16.06	58	<0.05* Nutrition
	18.69	2.90	10.98	2.69	-8.13	58	<0.05*
Psychological	17.66	4.63	7.86	5.10	-10.24	58	<0.05*

*** p-value < 0.05**

Table 4. Outcomes of stroke patients receiving home care by participation of public health volunteers. Compare BI values, experimental group and comparison group. Follow-up period 3 month

	The experimental group (n=30)		The control group (n=30)		t-test	df	p-value
Barthel ADL index	Mean	S.D.	Mean	S.D			
Before program	62.43	28.23	63.55	26.22	2.46	58	0.64 Implementation
After program	80.14	26.48	65.54	21.12	-10.12	58	<0.05*
Implementation							

* p-value < 0.05

Discussion:

The Public Health Volunteer Engagement Program in Home Care for Stroke Patients have a more benefit to improve the knowledge of stroke patient care including rehabilitation, the caring of nutrition, mental health care and environment. Public Health Volunteers can support caregiver of stroke patients for stroke rehabilitation at home. In addition, they can coordinated between the stroke patients, health care team and the health workers in the community.[6] this program can reduce the problems and severity of stroke patients at home. [7] According to the activities of the program, Public health volunteers were trained to address the physical problem of stroke at home by rehabilitation in home care. [8] Beside, public health volunteers can support the work of health workers at the community level as well.[9] For physical care, patients received the rehabilitation service to reduce the bone or joint problems. Additionally, stroke patients were supported concerning walking, eating, and showering at 2-3 times per day.[10] After program implementation by the public health volunteer team, the Barthel ADL

index of stroke patients was improve [11] This program supported the public health volunteer to evaluate emotional state and stress conditions of stoke patients including caregiver. Moreover, public health volunteer were trained to care stroke patients concerning the Nutritional status by cooperating with caregivers and community health workers. The nutrition knowledge related with the suitable food for caring stroke patients. [14] The environment at home related with the severity of stroke patients. The role of public health volunteer were coordinating with health workers in the community and caregiver to adjust the environment at their home such as bathrooms, folk, beds, etc. Additionally, they support resources to improve the severity of stroke patients. [16-18] The effectiveness of public health volunteer engagement program in home care for stroke patients can improve the Barthel ADL index of stroke patients.[19]

Conclusions:

The public health volunteer engagement program in home care for stroke patients can improve physical, mental status and nutrition including the Barthel ADL index of patients. Public health volunteers were importance to support the team of health workers, patients and caregivers for rehabilitation of stroke patients at home in the community. The findings suggest that health care professionals should apply this program to promote the public health volunteer to care stroke patients at home.

Article Information

Conflicts of Interest

Ethical consideration

The study was approved by the Human Research Ethics Committee of the Human research ethical consideration of Thammasat University number of COA 236/2020.

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References:

[1] Jessica M Cassidy, Steven C Cramer. Spontaneous and Therapeutic-Induced Mechanisms of Functional Recovery after Stroke, Transl Stroke Res. 2017 Feb; 8(1):33-46. doi: 10.1007/s12975-016-0467-5. Epub 2016 Apr 25.

[2] Elisheva R Coleman 1, Rohitha Moudgal. Early Rehabilitation after Stroke: a Narrative Review, Curr Atheroscler Rep. 2017 Nov 7; 19(12):59. doi: 10.1007/s11883-017-0686-6.

[3] Milan Mandić. Functional recovery of post stroke patients with hemiparesis after stroke of different aetiology. Med Pregl. Mar-Apr 2012; 65(3-4):158-62. doi: 10.2298/mpns1204158m.

[4] Caroline E Jenkinson, Andy P Dickens, Is volunteering a public health intervention? A systematic review and meta-analysis of the health and survival of volunteers. BMC Public Health. 2013 Aug 23;13:773. doi: 10.1186/1471-2458-13-773.

[5] Chen Y, Wright N, Mortality and recurrent vascular events after first incident stroke: a 9-year
   a. Community-based study of 0·5 million Chinese adults. Lancet Glob Health. 2020 Apr; 8(4):e580-e590. doi: 10.1016/S2214-109X(20)30069-3.

[6] Stroke Rehabilitation Article in PLoS ONE • June 2016 DOI: 10.1371/journal.pone.0157149

[7] Liu, Meigen, Naoichi Chino, and Hidetoshi Takahashi. "Current status of rehabilitation,
   a. Especially in patients with stroke, in Japan." Scandinavian journal of rehabilitation medicine
   b. 32.4 (2000): 148-158.

[8] Barbara J Lutz, Mary Ellen Young. Improving Stroke Caregiver Readiness for Transition From Inpatient Rehabilitation to Home,The Gerontologist, Volume 57, Issue 5, October 2017, Pages 880–889, https://doi.org/10.1093/geront/gnw135

[9] Rosemary Saunders, 1 Kien Chan Nursing and Allied Health Staff Perceptions and Experiences of a Volunteer Stroke Peer Support Program: A Qualitative Study Journal of Multidisciplinary Healthcare » Volume 14. https://doi.org/10.2147/JMDH.S341773

[10] Saunders DH, Sanderson M, Hayes S, Johnson Physical fitness training for stroke patients Cochrane Database Syst Rev. 2020 Mar 20;3(3):CD003316. doi: 10.1002/14651858.CD003316.pub7.

[11] Alexander H Nave, neurological research fellow .Physical Fitness Training in Patients with Subacute Stroke (PHYS-STROKE): multicentre, randomised controlled, endpoint blinded trial BMJ 2019; 366 doi: https://doi.org/10.1136/bmj.l5101 (Published 18 September 2019) Cite this as: BMJ 2019;366:l5101

[12] Marzena Kobylanska 1, Joanna Kowalska .The role of biopsychosocial factors in the rehabilitation process of individuals with a stroke. Work, vol. 61, no. 4, pp. 523-535, 2018 DOI: 10.3233/WOR-162823

[13] H Lim & R Choue .Impact of nutritional status and dietary quality on stroke: do we need specific recommendations European Journal of Clinical Nutrition volume 67, pages548–554 (2013).

[14] Toni Sabbouh , Michel T Torbey .Malnutrition in Stroke Patients: Risk Factors, Assessment, and Management Neurocritical Care volume 29, pages374–384 (2018) doi: 10.1007/s12028-017-0436-1.

[15] Tenelle Hodson ,Tammy Aplin Understanding the dimensions of home for people returning home post stroke rehabilitation ,First Published January 19, 2016 https://doi.org/10.1177/0308022615619420

[16] Kristine K.Miller, Susan H. Lin ScD, From Hospital to Home to Participation: A Position Paper on Transition Planning Poststroke.Volume 100, Issue 6, June 2019, Pages 1162-1175 DOI:https://doi.org/10.1016/j.apmr.2018.10.017

[17] Patrick Kitzman, Keisha Hudson Care Coordination for Community Transitions for Individuals Post-stroke Returning to Low-Resource Rural Communities, Journal of Community Health volume 42, pages565–572 (2017) doi.org/10.1007/s10900-016-0289-0.

[18] Elton H. Lobo, Mohamed Abdelrazek Caregiver Engagement in Stroke Care: Opportunities and Challenges in Australia and Denmark Front Public Health. 2021; 9: 758808. doi: 10.3389/fpubh.2021.758808