Original Article

Effects of a Self-Efficacy Promoting Program on Village Health Volunteers' Knowledge and Perceived Self-Efficacy for Dementia Screening in Older Persons: A Case Study at Sakon Nakhon Province

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Abstract

OBJECTIVES: To study the effects of self-efficacy promoting program on village health volunteers' (VHVs) knowledge and perceived self-efficacy for dementia screening in older adults.

MATERIALS AND METHODS: In this quasi-experimental study, two group pre-test and post-test design were used to study sixty VHVs who fulfilled the inclusion criteria. These were randomly divided into two groups: an experimental group (n = 30) receiving the self-efficacy promoting program for a 4-week period and a control group (n = 30) receiving the routine program. Data were collected using a demographics questionnaire, a dementia knowledge questionnaire, and a perceived self-efficacy for dementia screening in older adults' questionnaire. Data were analyzed using descriptive statistics, Chi-square test, paired t-test, independent t-test, Wilcoxon signed ranks test and Mann Whitney U test.

RESULTS: After participating in the self-efficacy promoting program the experimental group had significantly higher mean scores of dementia knowledge and perceived self-efficacy for dementia screening in older adults than before receiving the program when compared to the control group ($p < 0.001$, $p < 0.001$, respectively).

CONCLUSION: The self-efficacy promoting program is useful for developing the competency of VHVs in similar communities in order to assist nurses in monitoring and caring for dementia in older adults.

Keywords: a self-efficacy promoting program, village health volunteers, dementia screening

Dementia is a group of abnormal symptoms due to brain cell damage, which can result in impaired cognition, memory, behavior, and performance of activities of daily living.[1] It has several causes, including diseases that directly target the brain, such as Alzheimer's disease, and vascular dementia caused by chronic diseases.[2] The World Health Organization (WHO)[1] has found the number of adults with dementia worldwide to be rapidly escalating. At present, approximately 50 million adults have dementia and nearly 10 million new cases of dementia are reported every year. According to the Fifth Thai National Health Examination Survey, the prevalence of dementia in older adults was 8.1%, and this rate increases with age.[3]

However, older adults with dementia, their relatives, and caregivers are unaware of dementia and its abnormalities occurring and progressing gradually until the patients are unable to perform activities of daily life, such as their jobs or social events.[4] Consequently, impacts were found in several areas. Dementia can cause individuals to become uncooperative with caregivers. Furthermore, families and caregivers require assistance and knowledge to care for older adults with dementia.[5] Low-and moderate-income countries, in particular, have budgetary and personnel limitations in arranging efficiently adequate health care and social services.[6] In Thailand, the cost of care for individuals with dementia is approximately 600,000-800,000 baht per year for high-priced medications.[7]

WHO developed the 2017-2025 Global Action Plan on the Public Health Response to Dementia, which includes guidelines for the care and treatment of adults with dementia. Prevention is prioritized by minimizing dementia risk factors, early diagnosis, care and treatment, and assistance and support for family caregivers. Moreover, information systems for dementia were proposed in the document as a method for communicating research projects and innovations.[8] In addition, the WHO[9] expects a campaign in each country for reducing dementia risk factors, providing support and training caregivers in community-based care. In Thailand, the 2nd National Plan on the Elderly (2002-2021) has set up policy for the care of older adults. Regardless, there are limited health care services for older adults in communities and proactive work in protecting the health of older adults. Thus, the Ministry of Public Health has created community networks for continuing care of older adults.[10]

Literature review of competency development in VHVs shows that the efficacy of VHVs has improved in various areas such as home visits, home-based palliative care for patients, and providing care for stroke patients.[11-13] A study in Japan found that health volunteers provide care to reduce depression in older adults,[14] and palliative care for terminally ill patients.[15] In Thailand, VHVs are key leaders in the performance of public health work in communities, but VHVs have been found to perform well in short-term project work such as data surveys, campaigns on various issues, disseminating news and information. Regardless, there are various limitations to long-term work such as providing care for chronic disease patients.[16]

In Sakon Nakhon province, community nurse practitioners play an important role in contributing to knowledge on chronic care for VHVs once a month as a routine program at Sakon Nakhon Municipality Public Health Service Centers. However, improving health knowledge alone does not ensure VHVs will have confidence in practice. Therefore, it is necessary to build perceived self-efficacy as a key factor to bridge knowledge and performance.[17] Thus, a self-efficacy promoting program, based on Self-Efficacy Theory developed by Albert Bandura,[18] has been introduced to VHVs to enhance knowledge and perceived self-efficacy for dementia screening in older adults. Four resources are used including mastery experiences, vicarious experiences, verbal persuasion, and physiological and affective states. The program includes dementia knowledge and screening performance in older adults and group discussion for sharing experiences and problem solving. As a community nurse practitioner, the researcher is interested in examining the effects of self-efficacy promoting program on VHVs' knowledge and development of VHVs efficacy for dementia screening. This program will help VHVs in dementia screening for early detection in order to refer to nurses and health care team for diagnosis and proper management.

Material and Methods

Population and Sample

This quasi-experimental research designed with a two group pre-test-posttest design was conducted to answer research objectives after approval by the Institutional Review Board, Faculty of Medicine, Ramathibodi Hospital, Mahidol University (ID 04-59-38). Willing participants were village health volunteers (VHVs) in the Sakon Nakhon Municipality Public Health Service Centers, Thadcherngchum Sub-district, Muang District in Sakon Nakhon Province, Thailand. The study ran from July-August 2016, and all participants met the inclusion criteria including:

1. Working in the community for > 6 months.
2. Age > 18 years, if > 60 years, having a score of the short portable mental status questionnaire (SPMSQ)[19] > 8.
3. Being able to read, write, and speak Thai.

The exclusion criteria was having attended the program less than 4 times..

The sample size was calculated using the G* Power program.[20] The effect size was set at 0.80 in line with a previous study[21] with statistical power at 0.80, p value at 0.05. The sample size equaled 21 participants with an additional 40% for a final sample size of 30 participants in each group for a total sample size of 60 participants. Two health centers of Sakon Nakhon Municipality Public Health Service Centers were randomly divided into the experimental and control groups. The potential participants in each group were recruited into this study based on inclusion criteria.

Instruments

Instruments are divided into the following two parts:

Part 1: Instrument for intervention

1. **The intervention program:** The self-efficacy promoting program for dementia screening in older adults was applied to the community activities of the Alzheimer's Disease and Related Disorders Association (ARDA) for caregivers of older adults with dementia and activities were developed based on the conceptual framework of Bandura's Self-EfficacyTheory.[18] This program consisted of instruction, video presentations, four learning activities of brain assessment and stimulation at the 1st week, practice dementia screening in older adults in the community at the 2nd week, group processes at the 3rd week and post- test at the 4th week. This program was examined for content validity by three experts, including a physician, a care of community-based older adults, and an advanced practice nurse in older adult. The content validity index (CVI) of this program is equal to 1.
2. **The routine program:** Information about dementia consisted of teaching dementia screening, caring once a month and giving out a dementia handbook.

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Part 2: Instruments for data collection:

1. **Demographic questionnaire**, a fill-in-the-blank and multiple-choice questionnaire containing 13 items created by the researcher.
2. **Dementia knowledge questionnaire** developed by researcher based on the literature review having 20 items with 15 positive items. Each item had two answers valued at zero point and 1 point. Total scores ranged between 0-20 points in which a high total score meant the VHVs had a high level of dementia knowledge. This questionnaire had CVI = 1 and KR-20 (Kuder-Richardson Reliability) = 0.80.
3. **The perceived self-efficacy for dementia screening in older adult's questionnaire** developed by researcher based on the literature review with 20 items. The responses were rated on 5-level Likert scales with total possible scores ranging between 20 and 100 points in which a high score meant the VHV had a high level of perceived self-efficacy for dementia screening. This questionnaire had a CVI of 0.95 and the Cronbach's Alpha Coefficient was 0.88.

Data collection

After participants signed the informed consent form, the research assistants collected data using the demographic questionnaire, the knowledge of dementia, and the perceived self-efficacy for dementia screening in older adult's questionnaire in both groups. The experimental group participated in self-efficacy promoting program over 4 weeks including knowledge dementia, dementia screening and video presentations for 2 hours using vicarious experiences. Demonstration of four learning activities included assessment of brain capacity, numerical calculations/drawings, folding pandan leaves with the hand, and shaping a ball with the feet by using verbal persuasion with physiological and effective state and vicarious experience. These activities stimulate brain functions by head, hand, and feet exercises. Assignment to practice dementia screening in older adults in the community was conducted to promote mastery experience. The group process was integrated to motivate expression of opinions about the screening experiences with verbal persuasion and additional physiological and affective states in problem-solving and overcoming barriers. On the other hand, the control group received routine program on education once a month and were given a dementia handbook. After both groups completed the program, the participants were measured for the knowledge of dementia and the perceived self-efficacy for dementia screening in older adult (Figure 1).

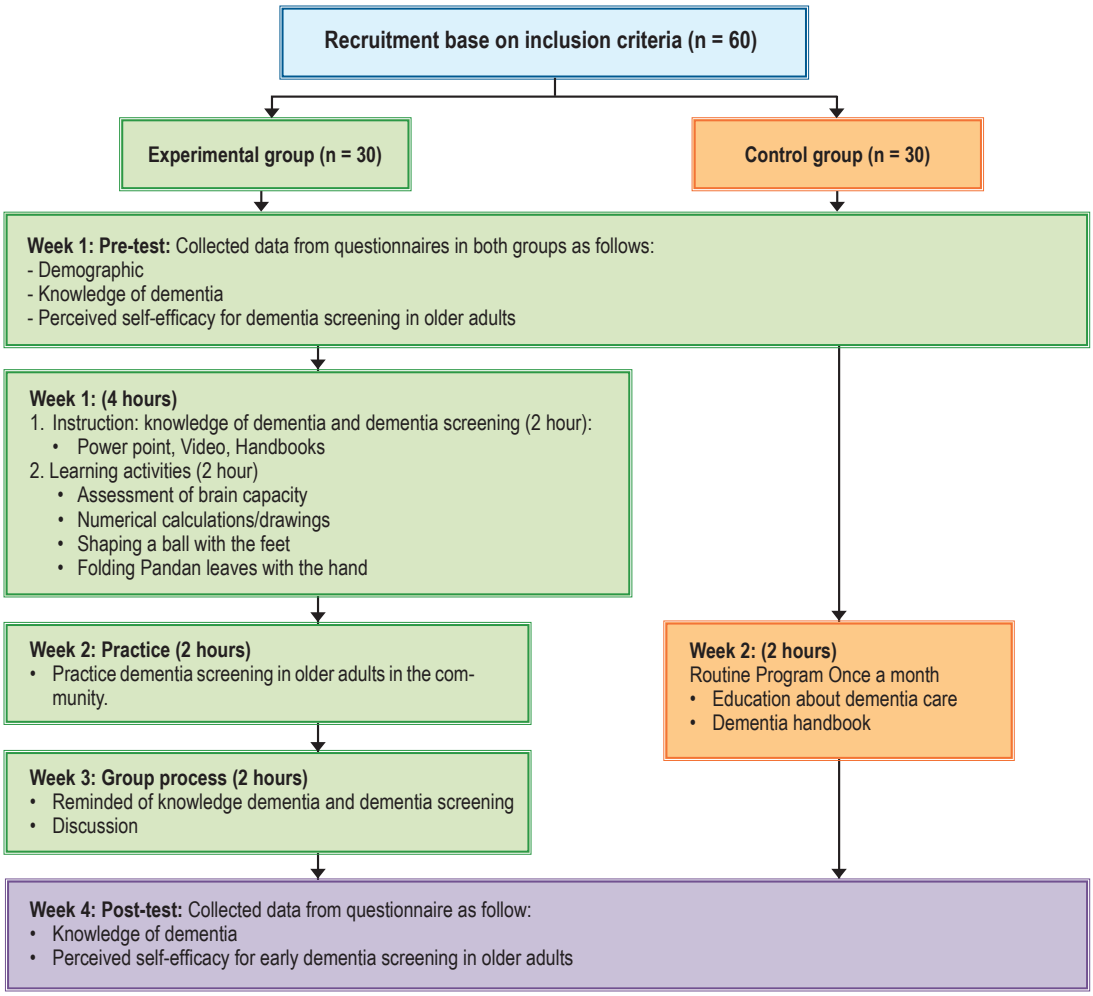

Figure 1: Process of VHVs programs

Data Analysis

The data obtained was analyzed with a computer program. The demographic data of participants and dependent variables were analyzed by using descriptive statistic of percentages, mean, and standard deviations. Chi-square test, independent t-test, and Mann-Whitney were conducted to examine the difference in the demographic data, and dependent variables between the experimental and control groups. Comparison of mean score on dementia knowledge and perceived self-efficacy in dementia screening in older adults within the groups by using Wilcoxon signed rank test and paired t-test.

Results

From a total of 60 VHVs, most of the experimental and control groups were female, with a mean age of 54.97 years (standard deviation: SD = 7.91) and 54.53 years (SD = 9.11) respectively. Approximately half of each group was married (56.70% and 53.30%, respectively). In terms of education levels, both groups were similar, at elementary level or lower (43.30% and 56.70%, respectively). Both groups had an equal number of Buddhists. Two in three of the experimental group were employed and in service as VHVs, while only half of the control group was employed (76.70% and 56.70%, respectively). In both groups, none of the participants had experiences in providing care for dementia patients, and had no older adults with senility in their families. However, one in three of the VHVs in each group had received instruction about dementia from various sources, namely, brochures and online media. The mean monthly incomes in each group was similar at 4,640 Baht (SD = 3,432.76) and 5,400 Baht (SD = 2,676.20); the length of time the participants had resided in the area were similar at 35.40 years (SD = 16.77) and 32.30 years (SD = 13.33). The period of time for the VHVs in each group was also similar at 10.03 years (SD = 5.75) and 11.70 years (SD = 5.72). The number of households under the VHV's responsibility were similar at 22.17 households (SD = 8.98) 23.07 households (SD = 8.14). The participants' demographic had no significant difference between the experimental and control groups using Chi-square test, and independent t- test ($p > 0.05$).

Before analysis of data, mean scores of dementia knowledge of both groups and perceived self-efficacy in dementia screening in older adults of the control group did not have normal distribution. Before the program, mean scores of dementia knowledge and perceived self-efficacy in dementia screening in older adults were not different when compared with the control group using Mann-Whitney U test ($z = -0.50$, $p > 0.05$, $z = -1.70$, $p > 0.05$, respectively) as shown in Table 1.

After participating in the program, the experimental group had significantly higher mean for knowledge dementia and perceived self-efficacy in dementia screening in older adults than before the program ($z = -4.81$, $p < 0.001$; $t = -35.32$, $p < 0.001$, respectively) and the control group ($z = -6.91$, $p < 0.001$; $t = -32.71$, $p < 0.001$, $t = -32.71$, $p < 0.001$) as shown in Table 2&3.

Table 1: Comparison between mean scores of dementia knowledge and perceived self-efficacy for dementia screening in older adults between experimental group and control group before the program by using Mann-Whitney U test (n = 60).

Variable	Total Possible Score	Experimental Group (n = 30)		Control Group (n = 30)		z	p
		Mean ± SD	Range	Mean ± SD	Range		
Knowledge	0 - 20	6.80 ± 1.32	5 - 9	6.63 ± 1.27	5 - 9	-0.50	0.615
Perceived Self-Efficacy	20 - 100	42.53 ± 9.76	26- 64	39.03 ± 9.25	25 - 64	-1.70	0.090

Table 2: Comparison of mean scores of dementia knowledge and perceived self-efficacy for dementia screening in older adults Pre-test and Post-test the program by using Wilcoxon signed rank test and paired t-test (n = 30).

Variable	Total Possible Score	Pre-test (n = 30)		Post-test (n = 30)		z	t
		Mean ± SD	Range	Mean ± SD	Range		
Knowledge	0 - 20	6.80 ± 1.32	5 - 9	19.80 ± 0.41	19 - 20	-4.81	-
Perceived Self-Efficacy	20 - 100	42.53 ± 9.76	26 - 64	91.23 ± 2.96	87 - 99	-	-35.32

*$p < 0.001$

Table 3: Comparison of mean scores on dementia knowledge and perceived self-efficacy for dementia screening in older adults after the program between experimental group and control group by using Mann-Whitney U test and independent t-test (n = 60).

Variable	Total Possible Score	Experimental Group (n = 30)		Control Group (n = 30)		z	t	p
		Mean ± SD	Range	Mean ± SD	Range			
Knowledge	0 - 20	19.80 ± 0.41	19 - 20	6.50 ± 1.28	5 - 9	-6.91	-	0.000*
Perceived Self-Efficacy	20 - 100	91.23 ± 2.96	87 - 99	37.30 ± 8.54	25 - 58	-	-32.71	0.000*

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Discussion

After taking part in the self-efficacy promoting program for dementia screening in older adults, the experimental group had a mean score on knowledge of dementia and a perceived self-efficacy for dementia screening in older adults higher than before the intervention and the control group ($p < 0.001$). VHVs in the experimental group received the self-efficacy promoting program integrated by Bandura' self-efficacy theory through experiences, building their confidence and enhancing their knowledge of dementia knowledge. They gained experience in dementia screening using the four resources: vicarious experience through the cognitive process by health education, including etiology, symptoms, screening, treatment and prevention using brain fitness, for people with dementia, via PowerPoint, video presentation and handbooks of dementia; enactive mastery experience, verbal persuasion and physiological and affective states through the motivational process by demonstration and return demonstration using many strategies for brain exercise, such as numerical calculations, shaping ball with the feet and so on. In addition, the group process provided for solving problems of dementia screening in older adults in the community by delivering verbal persuasion with physiological and effective state. Hence, this result is congruent with previous studies that self-efficacy promoting program could increase knowledge and self-efficacy of VHVs for dementia screening in older adults leading to increased higher scores on perceived self-efficacy than before the experiment[17,23] and the control group.[24]

Conclusion

The self-efficacy promoting program should be applied to VHVs in order to enhance dementia disease knowledge and self-efficacy for dementia screening in older adults in the community. Therefore, the self-efficacy promoting program should be useful for other similar VHVs characteristics or caregivers of people with dementia to prevent onset or report early detection in older adults in the community. Further research should be conducted to follow up after a period of one year on the self-efficacy of VHVs in knowledge and screening for dementia in older adults.

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References

1. World Health Organization. Dementia, 2018.(Accessed May 1, 2018,at http://www.who.int/news-room/facts-in-pictures/detail/dementia)
2. Chansirikanchana S. Knowledge about dementia, 2014. (Accessed November 22, 2014, at http://rxrama.com/article003.html). (in Thai)
3. Akepolakorn W. Thai Health Examination by the 5th Physical Examination,2014.(Accessed September 28, 2014, at http://kb.hsri.or.th/dspace/ handle/11228/4626).(in Thai)
4. Chansirikanchana S. Dementia Situation: A brainstorming session to develop a policy to prevent, treat and care dementia in Thailand. Nonthaburi: The graphic systems co., ltd.; 2012. (in Thai)
5. McCabe M, You E,TatangeloG. Hearing Their Voice: A Systematic Review of Dementia Family Caregivers' Needs. *Gerontologist* 2016; 56: 70-88.
6. The World Alzheimer Report. World Alzheimer Report 2015: The Global Impact of Dementia, 2015.(Accessed November 21, 2015, at https://www.alz.co.uk/research/world-report-2015)
7. Rungruang K, Kanjanasilp J, Ploylearmsang C, et al. Pharmaceutical Care in Outpatients with Dementia at Nakhon Ratchasima Rajanagarinda Psychiatric Hospital. *IJPS (Thai)* 2011;7:62-75.
8. Alzheimer's Disease International. Dementia in the Caribbean: No time to lose, 2018. (Accessed May 1, 2018,at https://www.alz.co.uk/news/dementia-in-caribbean-no-time-to-lose)
9. World Health Organization. Global action plan on the public health response to dementia 2017–2025, 2018. (Accessed April 5, 2018, at http://www.who.int/mental_health /neurology/dementia/action_plan_2017_2025/en/)
10. Ministry of Social Development and Human Security. National Plan for Elderly People, Vol. 2 (2002-2021), 1st revised edition, 2009, 2016.(Accessed March 1, 2016, at http://www.dop.go.th/download/laws/law_ th_20152309144546_1.pdf). (in Thai)
11. AnuntaP,Tonganake J,The effectiveness of home visit and training program in village health volunteers in Khwao, Selaphum, RoiEt. 2012. *J Office ODPC 6KhonKaen (Thai) 2013;20:1-8.*
12. Sangjune S, Yunak R, Tangkawanich T. The effect of village health volunteers' potentiality development program to provide patients palliative. *J Nurs Health Scien (Thai)* 2015;9:68-77.
13. Tejativaddhana P, Kitreerawutiwong N. Effectiveness of a Training Program for the Village Health Volunteers in Providing Community Care for Patients with Cerebrovascular Disease Using the Context-Based Learning (CBL) *J Nurs Health Care* (Thai) 2014;32:87.
14. Noguchi M, Iwase T, Suzuki E,KishimotoY,Takao S. Erratum to: Social support and suicidal ideation in Japan: are home visits by commissioned welfare volunteers associated with a lower risk of suicidal ideation among elderly people in the community? *Social Psychiatry and Psychiatric Epidemiology Journal.* 2015;50:505-6.

15. Burbeck R, Candy B, Low J, et al. Understanding the role of the volunteer in specialist palliative care: a systematic review and thematic synthesis of qualitative studies. *BMC Palliat Care* 2014;13(1):3.
16. Chuengsatiansup K, Suksut P.Health Volunteers in the Context of Change : Potential and Developmental Strategies. *J Health Sys Research (Thai)* 2007;1:268-79.
17. Phinyo P, Phinyo K, Janhauna S. The effectiveness of self-efficacy enhancement program on knowledge, attitudes and behaviors of the village health volunteers providing the long term care for the elders, KhonKaen province. *Songklanagarind J Nurs (Thai)* 2017;37:109-20.
18. Bandura A.Self-efficacy: the exercise of control. New York: W.H. Freeman and Company, 1997.
19. Pfeiffer, E. A short portable mental status questionnaire for the assessment of organic brain deficit in elderly patients. *J Am Geriatr Soc* 1975;23(10):433-41.
20. Erdfelder E, Faul F, Buchner A. G POWER: A general power analysis program. *Behav Res Meth Instrum Comput* 1996; 28(1): 1-11.
21. Pengsa-ium V, Chaiyasung P, Yakasem P. Outcome of empowerment program on perceived empowerment and caregiving practice of health volunteers to dementia of elderly. *J Nurs Educ (Thai)* 2015; 8:152-65.
22. Alzheimer's and Related Disorders Association of Thailand. Dementia assessment, 2015. (Accessed January 5, 2015, at http://www.thaimemorytest.com)
23. Prombutr P, Sookpool A, PhinyoK,Phinyo P. The effect of self-efficacy program toward knowledge and self-efficacy of village health volunteers in diabetic and hypertension patient care in community in northeast province. *Songklanagarind J Nurs (Thai)* 2015;35:113-28.
24. Simsiriwat W, Junprasert S, Krungkraipetch N. Effects of Self-Efficacy Promotion on Knowledge, Perceived Self-Efficacy and Promoting Thalassemia Control Behavior among Bangkok Health Volunteers. *J Nurs Burapha (Thai)* 2017;25:94-104.

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