

EFFECTS OF A NURSE-LED PROGRAM ON FALL PREVENTION BEHAVIORS FOR OLDER ADULTS IN A COMMUNITY IN BANGKOK*

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ABSTRACT

Falling is a major cause for the need for the elderly to receive care. This quasi-experimental research aimed to study the effects of a nurse-led program on fall prevention behaviors of the elderly living in a community in Bangkok. Sixty-one elderly adults living in Ladprao sub-district, aged 70-79 years old were selected. These subjects were capable of performing daily routines of the elderly by themselves, and had normal cognitive function; 28 subjects were assigned to the experimental group and the other 33 subjects were in the comparison group. The experimental group received a program applying Orem's Self-Care deficit theory that comprised of self-care development activities to prevent falling, demonstration and practice exercises to increase balance, home visits by health volunteer, and education of family members in fall prevention. Data related to fall prevention behaviors were collected by interview questionnaires at the pre-test and post-test. The data were then analyzed using independent-sample t-test and paired t-test.

The results showed that, after the nurse-led program, the experimental group had statistically significant higher scores in fall prevention behaviors than before the intervention and also higher scores than the comparison group (p -value $< .05$). Results support the use of a nurse-led program to promote fall prevention behaviors among elderly in the community. The key component of the program, self-care training, was found to empower older adults to better take care of themselves to prevent falling and reduce dependency, which in turn improved elderly quality of life.

Keywords: Nurse-led program, fall, prevention, elderly, self-care behavior, Orem's Self-Care deficit theory

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Table 1 Baseline demographics, health status, and home safety environmental between experimental and comparison groups.

Variables	Experimental(n=28)		comparison (n=33)		Statistics	p-value
	Number	%	Number	%		
Demographics						
Sex					1.624	0.264 ^a
Male	6	21.4	12	36.4		
Female	22	84.6	21	63.6		
Age (Years)					-0.182	0.855 ^b
70-75	18	64.3	21	63.6		
76-80	10	35.7	12	36.4		
Min-Max	70-79		70-79			
Mean(SD)	73.61(2.97)		73.76(3.42)			
Marital status					1.050	0.592 ^c
Single	2	7.1	5	15.2		
Marry	11	39.3	13	39.3		
Widowed, Divorced /Separated	15	53.6	15	45.5		
Education					3.586	0.465 ^c
No education	3	10.7	2	6.1		
Primary-high school	23	82.1	23	69.7		
Bachelor	2	7.1	8	24.2		
Current job					2.629	0.452 ^c
employed	3	10.7	7	21.2		
Unemployed	25	89.3	26	78.8		
Monthly income					-0.927	0.358 ^b
<2000	9	32.1	12	36.4		

Variables	Experimental(n=28)		comparison (n=33)		Statistics	p-value
	Number	%	Number	%		
2000-6000	14	50.0	10	30.3		
>6000	5	17.9	11	33.3		
Min-Max	700-20000		600-50000			
Mean(SD)	5075 (5724.91)		6969.7(9958.68)			

^a = p-value from Chi-square, ^b=p-value from Independent t-test, ^c=p-value from Fisher's ExactTest

Table 1 Baseline demographics, health status, and home safety environmental between experimental and comparison groups (Cont.).

Variables	Experimental (n=28)		comparison (n=33)		Statistics	p- value
	Number	%	Number	%		
Source of income*						
From their own work	4	14.3	8	24.2	0.950	0.519 ^c
Form out source	26	92.9	32	97.0	0.548	0.589 ^c
Sufficient income					6.011	0.210 ^a
Enough	19	67.9	21	63.6		
Insufficient	9	32.1	12	36.4		
Health status						
BMI					1.301	0.20 ^b
Underweight (<18.5)	2	7.1	2	6.1		
Normal (18.5-24.99)	12	42.9	23	69.7		
Obese	14	50.0	8	24.2		
Min-Max	14.06-39.54		13.28-21.25			
Mean(SD)	24.75(5.39)		23.21(3.39)			
Underlying disease					1.700	0.317 ^c
No	7	25.0	4	12.1		
Yes	21	75.0	29	87.9		

High risk medication used in the past month					2.075	0.231 ^c
No	5	17.9	2	6.1		
Yes	23	82.1	31	93.9		
Home safety environment						
Dry bathroom floor					1.368	0.176 ^b
No	3	10.7	8	24.2		
Yes	25	89.3	25	75.8		
Clear indoor walkway					1.208	0.232 ^b
No	1	3.6	4	12.1		
Yes	27	96.4	29	87.9		

^a = p-value from Chi-square, ^b=p-value from Independent t-test, ^c=p-value from Fisher's Exact Test

* More than one answer

Table 1 Baseline demographics, health status, and home safety environmental between experimental and comparison groups (Cont.).

Variable	Experimental(n=28)		comparison (n=33)		Statistics	p-value
	Number	%	Number	%		
Tidy power cords					1.208	0.232 ^b
No	1	3.6	4	12.1		
Yes	27	96.4	29	87.9		
Proper lighting in the home					-0.116	0.908 ^b
No	1	3.6	1	3		
Yes	27	96.4	32	97		
Pets in the home					0.055	1.000 ^a
No	17	60.7	21	63.6		
Yes	11	39.3	12	36.4		
Risk of falling**					0.957	0.490 ^c
No	6	21.4	4	12.1		
Yes	22	78.6	29	87.9		

^a = p-value from Chi-square, ^b=p-value from Independent t-test, ^c=p-value from Fisher's Exact Test

** Measured by Thai-FRAT

Table 2 Comparing fall prevention behaviors before and after intervention in experimental and comparison groups.

Variable	Pre-test		Post-test		t-test	P-value
	\bar{X}	SD	\bar{X}	SD		
Fall prevention behaviors						
Experimental	56.61	8.05	63.07	6.91	-3.995	<0.01
comparison	53.85	8.10	53.61	7.40	0.133	0.895

Table 3 Comparing fall prevention behaviors between experiment and control groups.

Fall prevention behaviors	Experimental(n=28)		Control(n=33)		t-test	P-value
	\bar{X}	SD	\bar{X}	SD		
Pre-test	56.61	8.05	53.85	8.10	1.33	0.189
Post-test	63.07	6.91	53.61	7.40	5.13	<0.01

Reference

1. National Statistic Office. The 2014 survey of the older persons in Thailand. [cited 2016 Feb 25] Available from: http://social.nesdb.go.th/SocialStat/St atReport_Final.aspx?reportid=208&template=2R2C&yeartype=M&subcatid=27.
2. Department of Disease Control. Number and percentage of deaths from falls in persons over 60 years of age. [cited 2016 March 9] Available from: <http://www.thaincd.com/senior-injure-violence/information.php>, accessed.
3. Department of Medical Services. General exercise and specific diseases for the elderly. Bangkok: Ministry of Public Health; 2002. (in Thai)
4. Assantachai P. Health problems in the elderly and prevention. Bangkok: Union Creation; 2015. (in Thai)
5. Kitkumhang V. Factor associated with falling of elderly people in community [M.S. thesis]. Phayao: Naresuan University; 2005. (in Thai)
6. Fongchon K. Clinical nursing practice guidelines to promote muscle strength and gait balance to prevent falls in older adults [M.N.S. thesis]. Nakhonpathom: Mahidol University; 2000. (in Thai)

7. Sherrington C, Tiedemann A, Fairhall N, Close JCT, Lord SR. Exercise to prevention falls in older adult : an updated meta-analysis and best practice recommendations. NSW Public Health Bulletin. 2011; 22: 78-83.
8. Orem DE. Nursing: Concepts of practice. St. Louis: Mosby; 1995.
9. Cohen J. Statistical power analysis for the behavioral sciences. NY : Lawrence Erlbaum associates; 1988.
10. Somton W. Effects of a fall prevention program for Thai older adults. Journal of public health nursing. 2013; 27(3): 58-70
11. Kittipimpanon K. Development of a community-based fall prevention model for Thai older adults, living in an urban community [PhD thesis]. Nakhonpathom: Mahidol University; 2011.
12. Orem DE., Taylor SG, Repenning, KM. *Nursing: Concepts of practice*. St. Louis, MO: Mosby Year Book; 2001.
13. Pichayapinyo P. Nursing theory and application : individual, family, and community. Bangkok: Danex inter co-operation; 2013. (in Thai)
14. Suntavaja J. Basic concepts, theories and nursing processes. Bangkok: Thana press; 2007. (in Thai)
15. Pajareya K. Rehabilitation Medicine for General Practice. Bangkok: N.P.Press; 2005. (in Thai)
16. Thanomboon T. The application of Orem theory with case management for prevention recurrent hypoglycemia in elderly. Journal of public health nursing. 2012; 26(3): 94-105. (in Thai)
17. Thumnumseen K. Effects of self-care promoting program on self-care behavior among older adults with uncontrolled hypertension in Bangkok metropolitan. Journal of public health nursing. 2015; 29(2): 43-55.