

นิพนธ์ต้นฉบับ

Factors associated with dependency status of the elderly living in Thamprakorn Home Care for the Elderly.

Suttichai Jitapunkul* Thanyaluck Horbunlerkit**
Pirom Kamolratanakul*** Suchai Suteparuk*

Jitapunkul S, Horbunlerkit T, Kamolratanakul P, Suteparuk S. Factors associated with dependency status of the elderly living in Thamprakorn Home Care for the Elderly. *Chula Med J* 1995 Oct;39(10): 733-741

One hundred and sixty one elderly people living in the Thamprakorn Home for the Elderly were recruited for a study which aimed to determine factors associated with dependency status among the elderly. One hundred and six elderly were classified as dependent by the staff of the institution. Compared to the independent elderly, they were older, had lower educational levels, were often illiterate, had histories of strokes, were likely to use more aids, had longer durations of admission, had lower abbreviated mental test scores, lower social health battery scores and lower Barthel ADL index scores. Independent factors of dependency status identified by logistric regression analysis are high age, low Barthel ADL index and low social health battery scores Findings from this study suggest that social activities and active participation should be encouraged and supported among this popuulation.

Key words: *Elderly, Dependency status, Thai.*

Reprint request: Jitapunkul S, Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok 10330, Thailand.

Received for publication. September 1,1995.

*Department of Medicine, Faculty of Medicine, Chulalongkorn University.

**Health Development Program Graduate School, Faculty of Medicine, Chulalongkorn University.

***Department of Preventive and Social Medicine, Faculty of Medicine, Chulalongkorn University.

สุทธิชัย จิตะพันธ์กุล, รัญลักษณ์ หอบรรลือกิจ, ภิรมย์ กมลรัตนกุล, สุชัย สุเทพารักษ์. ปัจจัยของภาวะพึ่งพาในผู้สูงอายุที่พำนักอยู่ในสถานสงเคราะห์คนชราธรรมปกรณ์. จุฬาลงกรณ์เวชสาร 2538 ตุลาคม;39(10): 733-741

ผู้สูงอายุจำนวน 161 คนที่พำนักอยู่ในสถานสงเคราะห์คนชราธรรมปกรณ์ ได้รับการศึกษาเพื่อค้นหาปัจจัยที่มีความสัมพันธ์กับภาวะพึ่งพา ผู้สูงอายุจำนวน 106 คน ได้รับการจัดว่าเป็นผู้ที่อยู่ในภาวะพึ่งพาโดยผู้ดูแลประจำของสถานสงเคราะห์ โดยเมื่อเปรียบเทียบกับผู้สูงอายุที่ไม่มีภาวะพึ่งพาพบว่าผู้สูงอายุเหล่านี้มีอายุมากกว่า ได้รับการศึกษาในระดับต่ำกว่า มีจำนวนอ่านไม่ออกเขียนไม่ได้สูงกว่า มีประวัติโรคหลอดเลือดสมองมากกว่า มีการใช้อุปกรณ์ช่วยเหลือเช่นไม้เท้าในอัตราสูงกว่า พำนักอยู่ในสถานสงเคราะห์มานานกว่า ทำคะแนนแบบทดสอบสภาพจิต Abbreviated mental test ได้ต่ำกว่า ได้คะแนนต่ำกว่าจากการประเมินกิจกรรมทางสังคมโดยแบบทดสอบ Social health battery และมีภาวะทุพพลภาพมากกว่าจากการประเมินโดยแบบทดสอบ Barthel ADL index ปัจจัยอิสระที่ได้จากการวิเคราะห์ logistic regression ได้แก่ อายุมาก คะแนน Barthel ADL index ต่ำ และคะแนน Social health battery ต่ำ การศึกษานี้แสดงให้เห็นว่าผู้สูงอายุไทยที่พำนักในสถานสงเคราะห์คนชรา ควรได้รับการบริการทางสุขภาพที่เหมาะสมนอกเหนือไปจากการบริการทางสังคมโดยปกติ และควรให้มีการกระตุ้นและสนับสนุนให้ผู้สูงอายุเข้าร่วมกิจกรรมทางสังคม

At present the number of Thai elderly is increasing rapidly, and this inevitably affects both health and social services.⁽¹⁻³⁾ A significant number of Thai elderly have social problems and need shelter. At present there are 16 homes for the elderly of which four were set up within the last five years. Although the elderly who are eligible for staying in the government homes for the elderly should be healthy and able to take care of themselves, most of them become dependent after a period of time. These dependent elderly definitely consume a high proportion of the limited support resources within the homes. A health promotion and an infirmness preventive programme may improve the health status of the elderly living in these institutes and may delay the onset of dependence. The factors associated with dependency status among this population are needed for identifying the high risk elderly who may get most benefit of better health promotion. Nonetheless, the factors associated with the dependency status of those living in homes for the elderly in Thailand have not yet been studied. Therefore, we conducted a study of the elderly living in Thamprakorn Home in Chiangmai. Our study aimed to determine factors associated with dependency status.

Subjects and methods

All of the elderly who were living in Thamprakorn Home for the Elderly in Chiangmai during October/November 1992 were recruited into our study. They were interviewed and assessed by one researcher (TH). Characteristics which were compiled included age, sex, nationality, duration of admission, marital status, educa-

tion level, literacy, principle work during their active life period, history of alcohol consumption, history of cigarette smoking and use of aids (cane, crutch, walker, wheelchair etc.) Their principal work was classified into three categories: heavy (labor, farmer); moderate (general service, merchant, housework); and light (clerk, administrator, professional career) Their histories of medical illness were reviewed and classified as diabetes mellitus, hypertension, congestive heart failure and angina pectoris, chronic renal failure, osteoarthritis, stroke, and other medical illnesses. The perceived health status was collected by using an ordinal scale (3 = always in good health, 2 = ill sometimes, 1 = always ill). Life satisfaction was rated using the Delighted-Terrible Face scale.⁽⁴⁾ The abbreviated mental test^(5,6) was used for cognitive function assessment. The geriatric depression scale^(7,8) was used for depression assessment. The social health battery,⁽⁹⁾ which was modified by selecting only appropriate questions for Thai elderly, was used for social function evaluation. The Barthel ADL Index^(10,11) was used for disability evaluation. The staff of Thamprakorn Home for the Elderly who took responsibility for caring for the elderly were asked about their dependency status by rating them as "independent (no need help or supervision for routine daily activities)" or "dependent (need help or supervision for routine daily activities)".

Univariate factors of dependency status of the elderly rated by the staff of the home were determined by using the chi-square test, student's t-test or Mann Whitney-U test (alpha error = 5%) wherever they were appropriate. The Chi-

square test was used for statistical analysis of discrete data. The student's t-test was used for statistical analysis of continuous data which had normal distribution. The Mann Whitney-U test was used for statistic analysis of continuous or interval data which might not have normal distribution. For determining multivariate factors of dependency status, all identified univariate factors except "use of aids" were given logistic regression analysis using dependency status (dependent or independent) as the dependent factor. Forward steps proceeded with likelihood ratio criterion of analysis. The SPSS-PC+ program was used for statistical analysis.

Results

One hundred and sixty-one elderly people living in the Thamprakorn Home for the Elderly were recruited for the study. Eighty-one subjects were male. The mean age and its standard deviation (minimum-maximum) were 76.7 and 8.6

(60-99) years, respectively. One hundred and six elderly were rated as being dependent by the staff of the home who were taking responsible for caring for these elderly. The characteristics of all subjects and independent-dependent subgroups are shown in Table 1. There histories of medical illness and the results of tests measured in this population are shown in Table 2. The dependent elderly had higher ages, lower educational levels, more illiteracy, more histories of stroke, more use of aids, longer durations of admission, lower mental test scores, lower social battery scores and lower Barthel ADL index scores than did the independent elderly (Table 3). All identified univariate factors except "use of aids" were given logistic regression analysis using dependency status (dependent or independent) as the dependent factor. Three multivariate factors including "age", "Barthel ADL index" and "social health battery" were identified.

Table 1. Characteristics of elderly people living in Thamprakorn home for the elderly.

Characteristics	All subjects n = 161	Dependent subjects n = 106	Independent subjects n = 55
- Age in years : mean (SD*)	76.7 (8.6)	79.7 (8.1)	70.8 (6.1)
- Sex : % male	50.3	47.2	56.4
- Marital status : %			
Single	16.8	18.9	12.7
Married	8.1	5.7	12.7
Widow	68.9	71.1	63.6
Divorce	6.2	3.8	10.9
- Educational level : %			
No formal education	52.8	60.4	38.2
Primary school	38.5	34.0	47.3
Secondary school	8.7	5.7	14.5
- Principle occupation classified by level of activity : %			
Heavy (labor, farmer)	37.9	34.0	45.5
Moderate (general service, merchant, housework)	26.1	31.1	16.4
Light (clerk, administrator, professional)	36.0	34.9	38.2
- Smoking : %			
never	46.6	49.1	41.8
yes	32.9	27.4	43.6
ex-smoker	20.5	23.6	14.5
- Alcoholic drinking : %			
never	88.8	87.7	90.9
yes	2.5	2.8	1.8
ex-drinker	8.7	9.4	7.3
- Use of aids : %			
cane	19.3	25.5	7.3
crutch	6.8	10.4	-
wheelchair	0.6	0.9	-

*SD = standard deviation

Table 2. History of medical problems, seeing ability, hearing ability, perceived health status and results of measures used in the study.

Characteristics	All subjects	Dependent subjects	Independent subjects
History of medical problems: %			
diabetes mellitus	1.2	1.9	-
hypertension	9.3	10.4	7.3
obstructive pulmonary disease	5	4.7	5.5
osteoarthritis of knees	35.4	38.7	29.1
heart disease	7.5	7.5	7.3
chronic renal failure	0.6	0.9	-
stroke	9.9	14.2	1.8
others	19.3	17.0	23.6
Seeing ability : %			
normal	30.4	24.5	41.8
impaired	68.3	74.5	56.4
blind or nearly blind	1.2	0.9	1.8
Hearing ability : %			
normal	65.8	61.3	74.5
dump	33.5	38.7	23.6
deaf	0.6	-	1.8
Perceived health status: %			
good	13	9.4	20.0
fair	64.6	64.2	65.5
poor	22.4	26.4	14.5
Life satisfaction: mean score(SD)	3.6 (1.6)	3.4 (1.7)	3.7 (1.6)
Abbreviated mental test: mean(SD)	6.4 (2.3)	6.0 (2.3)	7.0 (2.2)
Geriatric depression scale: mean(SD)	9.9 (2.3)	10.0 (2.2)	9.6 (2.3)
Social health battery: mean(SD)	13.7 (5.4)	13.0 (6.3)	15.0 (2.8)
Barthel ADL Index: mean score(SD)	18.2 (2.6)	17.5 (2.8)	19.7 (0.7)

Table 3. Univariate factors associated with dependency status of the subjects.

Univariate factors	
high age	p = 0.0000
low education level	p = 0.0155
illiterate	p = 0.0465
history of stroke	p = 0.0131
use aids	p = 0.0001
long duration of admission	p = 0.0019
low mental test score	p = 0.0078
low social health battery score	p = 0.0000
low Barthel ADL index score	p = 0.0000

Discussion

The staff in the home for the elderly have to take care of the elderly not only in basic activities of daily living but also in some instrumental activities of daily living such as walking outdoor and washing clothes. Therefore, the staff rated two-thirds of the subjects as being dependent.

It is not surprising to find that increased age, history of stroke, using aids and long duration of admission are univariate factors of dependency status. Elderly subjects with low educational level and illiteracy were also more likely to be dependent. These factors had also been demonstrated as associated factors of disability in another recent study. Literate or educated people may have a better chance to learn about health, proper self-care and health service use. However, these factors probably are indexes of wealth or good social class. This is because Thai elderly who had an opportunity to study while they were young were always born into a wealthy family and the elderly who had higher education levels

always had better jobs throughout their lives. Impaired cognitive function and depression are well known risk factors of disability and dependency status among the elderly. Nevertheless, only low mental test scores were demonstrated in this study. The Geriatric Depression Scale (GDS) used in this study may not be sensitive enough or may have a problem with cross-cultural use.⁽¹²⁾ Thus, the discriminating power of the GDS may be inadequate for use with this population. Independent elderly were likely to have more social participation and had a high Barthel ADL index score. Although social activity depends partly on their performance (i.e. ability), it is also linked to motivation, attitude, emotion and personality. Positive behaviour and attitude are probably the major determinants in being independent. Although there is a relationship between disability and dependency status, they are not the same. One disabled elderly person may be dependent while another who has the same level of performance may be independent.^(13,14)

From logistic regression analysis, independent factors including "age", "Barthel ADL index score" and "social health battery score" are identified. This finding clearly demonstrates that social activity is an independent factor of dependency status of Thai elderly living in the Thamprakorn home. Disability can be regarded as a common stage in various diseases and in the aging process.⁽¹⁵⁾ Nonetheless, social activity and participation, which may be a common stage of cognition, attitude, personality and emotion is also an essential factor. Findings from this study suggest that Thai elderly living in homes for the elderly should be provided not only with social care but also appropriate health care. Apart from curative care; health promotion, infirmness prevention and rehabilitation should be emphasized. Social participation by the elderly should be encouraged. Both outside- and inside-institution social activities are warranted. These measures may lessen the number of dependent elderly, improve the quality of life for the elderly and relieve the financial burden of the institution.

References

1. Jitapunkul S, Bunnag S, Ebrahim S. Health care for the elderly people in developing countries: a case study of Thailand. *Age Ageing* 1993 Sep;22(5):377-81
2. Jitapunkul S, Bunnag S. Death and discharge from the Department of Medicine, Chulalongkorn Hospital. *Chula Med J* 1992 Nov;36(11):839-44
3. Thamprechavai S, Somerville K, Jitapunkul S, Bunnag S, Ebrahim S. Elderly bed blockers in a Thai teaching hospital : is it a problem? *J Med Assoc Thai* 1992 Jul;75(7):418-22
4. Andrews FM, Withey SB. *Social Indicators of Well-being: Americans' Perception of Life Quality*. New York: Plenum Press, 1976
5. Jitapunkul S, Pillay I, Ebrahim S. The abbreviated mental test: Its Use and Validity. *Age Ageing* 1991 Sep;20(5):332-6
6. Qureshi KN, Hodkinson HM. Evaluation of a ten-question mental test in the institutionalized elderly. *Age Ageing* 1974 Aug; 3(3):152-7
7. Jitapunkul S, Nivataphand R, Worakul P, et al. The validity and factor analysis of the Geriatric Depression Scale using in Thai elderly. *Chula Med J* 1994 Jul;38(7): 383-9
8. Sheik JI, Yesavage JA. Geriatric Depression Scale (GDS): recent evidence and development of a shorter version. In: Brink TL, ed. *Clinical Gerontology: a Guide to Assessment and Intervention*. New York: Haworth Press, 1986.
9. Mcdowell I, Newell C. *Measuring health: A Guide to Rating Scales and questionnaires*. New York, Oxford University Press 1987
10. Mahoney FI, Barthel DW. Functional evaluation : the Barthel Index *Maryland Med J* 1965 Feb;14:61-5
11. The Royal College of Physicians and the British Geriatric Society. *Standardized Assessment Scales for the Elderly People*. London: Royal College of Physicians of London, 1992.

12. Jitapunkul S, Kamolratanakul P, Ebrahim S. Disability among Thai elderly living in Klong Toey slum. *J Med Assoc Thai* 1994 May;77(5):231-38 ✓
13. Bury MR. The ICIDH: a review of research and prospects. *Int Disabil Studies* 1987; 9(3):118-22
14. Williams SJ, Bury MR. Impairment, disability and handicap in chronic respiratory illness. *Soc Sci Med* 1989;29(5):609-16
15. Jitapunkul S. Disability: a problem of the elderly. *Chula Med J* 1994 Feb;38(2): 67-75