

that the findings will be useful in choosing a relevant care environment for older adults in need of care and will contribute to the improvement of eligible service provision for older adults with dementia.

### Conflict of interest

None.

### Description of authors' roles

J. Onishi formulated the research questions, designed and carried out the study, and wrote the paper. Y. Suzuki assisted with the study design and writing the paper. H. Umegaki and H. Endo assisted with the study design. T. Kawamura helped with the statistical design of the study. M. Inaizumi helped with the survey in the long-term care hospital. The study was supervised by A. Iguchi.

### Acknowledgments

This study was supported by a Grant-in-Aid for Scientific Research, entitled Clinical Research for Evidenced-Based Medicine from the Ministry of Health, Labor and Welfare.

We thank all the staff of the group homes, nursing homes and long-term care hospital for their cooperation in this study.

### References

- Annerstedt, L. (1997). Group-living care: an alternative for the demented elderly. *Dementia and Geriatric Cognitive Disorders*, 2, 136-142.
- Annerstedt, L., Sanada, J. and Gustafson, L. (1996). A dynamic long-term care system for the demented elderly. *International Psychogeriatrics*, 8, 561-574.
- Baumgarten, M., Becker, R. and Gauthier, S. (1990). Validity and reliability of the dementia behavior disturbance scale. *Journal of the American Geriatrics Society*, 38, 221-226.
- Colvez, A., Joel, M. E., Ponton-Sanchez, A. and Royer, A. C. (2002). Health status and work burden of Alzheimer patients' informal caregivers: comparisons of five different care programs in the European Union. *Health Policy*, 60, 219-233.
- Cummings, J. L., Mega, M., Gray, K., Rosenberg-Thompson, S., Carusi, D. A. and Gornbein, J. (1994). The Neuropsychiatric Inventory: comprehensive assessment of psychopathology in dementia. *Neurology*, 44, 2308-2314.
- Dunkin, J. J. and Anderson-Hanley, C. (1998). Dementia caregiver burden: a review of the literature and guidelines for assessment and intervention. *Neurology*, 51, S53-60.
- Elmstahl, S., Ingvald, B. and Annerstedt, L. (1998a). Family caregiving in dementia: prediction of caregiver burden 12 months after relocation to group-living care. *International Psychogeriatrics*, 10, 127-146.

- Elmstahl, S., Stenberg, I., Annerstedt, L. and Ingvad, B. (1998b). Behavioral disturbances and pharmacological treatment of patients with dementia in family caregiving: a 2-year follow-up. *International Psychogeriatrics*, 10, 239-252.
- Faxen-Irving, G., Andren-Olsson, B., af Geijerstam, A., Basun, H. and Cederholm, T. (2002). The effect of nutritional intervention in elderly subjects residing in group-living for the demented. *European Journal of Clinical Nutrition*, 56, 221-227.
- Finkel, S. I., Burns, A. and Cohen, G. (2002). Behavioral and psychological symptoms of dementia (BPSD): a clinical and research update. *International Psychogeriatrics*, 12 (suppl 11) 13-18.
- Folstein, M. F., Folstein, S. E. and McHugh, P. R. (1975). "Mini-mental state". A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*, 12, 189-198.
- Greene, J. G., Smith, R., Gardiner, M. and Timbury, G. C. (1982). Measuring behavioural disturbance of elderly demented patients in the community and its effects on relatives: a factor analytic study. *Age and Ageing*, 11, 121-126.
- Katz, S., Ford, B. and Moskowitz, W. (1963). Studies of illness in the aged. The index of ADL: a standardized measure of biological and psychosocial function. *Journal of the American Medical Association*, 185, 914-919.
- Mahoney, F. I. and Barthel, D. W. (1965). Functional evaluation: the Barthel Index. *Maryland State Medical Journal*, 14, 61-65.
- Onishi, J., Suzuki, Y., Umegaki, H., Nakamura, A., Endo, H. and Iguchi, A. (2005). Influence of behavioral and psychological symptoms of dementia (BPSD) and environment of care on caregivers' burden. *Archives of Gerontology and Geriatrics*, 41, 159-168.
- Reisberg, B., Borenstein, J., Salob, S. P., Ferris, S. H., Franssen, E. and Georgotas, A. (1987). Behavioral symptoms in Alzheimer's disease: phenomenology and treatment. *The Journal of Clinical Psychiatry*, 48, S9-15.
- Sanford, J. R. (1975). Tolerance of debility in elderly dependants by supporters at home: its significance for hospital practice. *British Medical Journal*, 23, 471-473.
- Schreiner, A. S. (2001). Aggressive behaviors among demented nursing home residents in Japan. *International Journal of Geriatric Psychiatry*, 16, 209-215.
- Teri, L., Truax, P., Logsdon, R., Uomoto, J., Zarit, S. and Vitaliano, P. P. (1992). Assessment of behavioral problems in dementia: the revised memory and behavior problems checklist. *Psychology and Aging*, 7, 622-631.
- Wimo, A., Adolfsson, R. and Sandman, P. O. (1995a). Care for demented patients in different living conditions. Effects on cognitive function, ADL-capacity and behaviour. *Scandinavian Journal of Primary Health Care*, 13, 205-210.
- Wimo, A., Asplund, K., Mattsson, B., Adolfsson, R. and Lundgren, K. (1995b). Patients with dementia in group living: experiences 4 years after admission. *International Psychogeriatrics*, 7, 123-127.



## The pleasurable recreational activities among community-dwelling older adults

Joji Onishi <sup>a,\*</sup>, Yuichiro Masuda <sup>a</sup>, Yusuke Suzuki <sup>a</sup>,  
Tadao Gotoh <sup>b</sup>, Takashi Kawamura <sup>c</sup>,  
Akihisa Iguchi <sup>a</sup>

<sup>a</sup> Department of Geriatrics, Nagoya University Graduate School of Medicine,  
65 Tsuruma-Cho, Showa-Ku, Nagoya, Aichi 466-8550, Japan

<sup>b</sup> Wara National Health Insurance Hospital, 882 Sawa, Wara-cho, Guzyo, Gifu 501-4595, Japan

<sup>c</sup> Kyoto University Health Service, Yoshida-honmachi, Sakyo-ku,  
Kyoto 606-8501, Japan

Received 5 May 2005; received in revised form 10 October 2005; accepted 12 October 2005

Available online 20 December 2005

### Abstract

This study aimed to clarify what pleasurable recreational activities older adults like to participate in, and to investigate the relationship between those activities and quality of life (QOL). Questionnaires were delivered to older residents (65 years and above) in a Japanese rural area. The residents' background information, the amount of pleasure for various activities, and the QOL were surveyed. The QOL was evaluated by the revised Philadelphia Geriatric Center (PGC) morale scale. The amount of pleasure taken in a majority of the activities, such as conversation with family or neighbors showed a significant association with the happiness score, but only a few activities showed significant association between the revised PGC morale scale and the amount of pleasure. The multiple regression analyses indicated that the amount of pleasure in exercise, the difficulty in managing finances, and amount of pleasure taken in watching TV were significant variables for predicting the happiness score. The results indicated that the amount of pleasure older adults experienced when engaging in activities such as conversation with family or neighbors showed significant association with the older adults' happiness. These results may be helpful in understanding contributions of various activities to the perception of pleasure in older adults.

© 2005 Elsevier Ireland Ltd. All rights reserved.

**Keywords:** Community-dwelling elderly; Quality of life; Recreational activities

\* Corresponding author. Tel.: +81 52 744 2364; fax: +81 52 744 2371.

E-mail address: [j-onishi@med.nagoya-u.ac.jp](mailto:j-onishi@med.nagoya-u.ac.jp) (J. Onishi).

## 1. Introduction

A variety of activities and programs for older adults have been implemented by communities across Japan to help older adults stay healthy and active. Many club activities for older adults have been made available by both community organizations and private care providers. Physicians recommend that older patients adopt hobbies in order to maintain their vitality and prevent deterioration in their physical and mental health. In addition, adult day care centers provide recreational services for frail elderly people, which are funded by public long-term health care insurance in Japan. However, conflict between young recreational service providers and the older adults under their care sometimes occur largely, due to the fact that service providers do not always have a sufficient understanding of the preferences of older adults. Previous reports surveyed the frequency of participation in various leisure activities, which showed older adults were often participating in the activities such as watching TV or listening radio, traveling, or doing sports (Life Design White Paper, 1999; Annual Report on the Aging Society, 2002). But there are some gaps between the activities in which older adults are actually participating and those which they would like to participate even if they are not doing. Therefore, it is important to understand what activities older adults like to participate in. Furthermore, it is essential to understand which activities can help older adults maintain their quality of life (QOL). The authors worked under the assumption that some activities can help prevent the reduction of QOL of older adults, despite negative experiences they may have suffered, such as retirement, the onset of a disability, or the death of family members.

In this study, we surveyed the amount of pleasure when older adults participate in daily or recreational activities. The original list made by the authors based on the results, which is derived from the preliminary study that clarified rate of residents enjoying the activities and QOL in Japanese nursing home (Onishi et al., 2005), was used to evaluate the amount of pleasure. Also, we studied the relationship between how pleasant they perceive in the activities and their QOL.

## 2. Subjects and methods

### 2.1. Subjects and data collection

Nine hundred and sixty-four older adults aged 65 years and over living in a village, situated in the mountainous area of central Japan, were nominated from a health care register. A questionnaire was mailed, along with a letter inviting the adults to schedule their annual health checkup, to all of the nominated subjects. The completed questionnaire was then collected when the subjects came in for a subsequent health checkup. Written consent was obtained from all subjects. The data from the questionnaires and health checkups were combined for analysis.

### 2.2. Questionnaire

The questionnaire consisted of questions about the demographic and characteristic information, the amount of pleasure taken in activities, and QOL. Demographic and

Table 1  
List of the activities

---

Items
Watching TV
Listening to music
Walking
Conversation with family
Conversation with neighbors
Eating meals
Reading books
Playing with animals
Singing songs
Relaxing at home
Gardening
Working
Traveling
Fishing
Bathing
Gambling
Physical exercise
Joining club activities for older adults

---

characteristic information included age, gender, basic activities of daily living (ADL), family structure, former and present occupation, the presence of chronic physical pain, hobbies, human relationships, and the frequency with which the respondents went out. Subjects rated difficulty in managing finances on a 5-point scale from extremely high to extremely low.

The amount of pleasure experienced by the participants when participating in 18 daily and recreational activities was examined using the original list shown in Table 1. The amount of pleasure was described by three alternatives: "very pleasant" (2 points), "moderately pleasant" (1 point), or "not pleasant" (0 point) for each activity. The participants were asked to select one among the three alternatives, even if they did not actually participate in the activity listed, unless they had never actually engaged in the activity during their life.

The QOL was evaluated by the revised Philadelphia Geriatric Center (PGC) morale scale (Lawton, 1975). The happiness score was subjectively scored by the participants between 0 for extremely unhappy, and 100 for extremely happy.

### 2.3. Statistical analyses

The internal consistency of the revised PGC morale scale was calculated by Cronbach's method. The correlations between age, the total score of the amount of pleasure experienced in daily and recreational activities, the revised PGC morale scale, and the happiness score were examined, and Pearson's correlation coefficients were calculated. Spearman's rank correlation analyses were applied for the correlation between the amount of pleasure given for each activity, the revised PGC morale scale, and the happiness score. Differences in the revised PGC morale scale and the happiness score between two groups

divided by the response to each question were tested using the Student's *t*-test. Differences in the revised PGC morale scale and happiness score between more than two groups were determined by one-way analysis of variance (ANOVA). Tukey's test was used for multiple comparisons after ANOVA. Univariate and multiple linear regression analyses were carried out to evaluate the influence of the amount of pleasure for the recreational activities on the revised PGC morale scale and the happiness score. The step-wise method was used for the multiple regression analyses, controlling for age and gender. All tests were two-tailed, and scores of  $P < 0.05$  were considered statistically significant. All statistical analyses were performed on a personal computer with the statistical package SPSS for Windows (Version 11.0 SPSS Inc., Chicago, IL).

### 3. Results

In total, 420 older adults (189 males and 231 females, 46.1% of the nominated subjects) were examined. The mean age was  $72.3 \pm 5.1$  (S.D.), and mean basic ADL was  $19.8 \pm 0.5$  (S.D.)/20. The former occupations of the subjects were: agriculture, fishery, or forestry: 37.1%; office worker: 32.3%; undefined including housewife: 14.1%; self-employment and others: 16.6%. The present occupations were: agriculture, fishing, or forestry: 37.2%; office worker: 4.5%; no occupation including housewife: 49.9%; self-employment and others: 8.3%.

The mean of the total score of pleasant recreational activities was  $14.1 \pm 4.9$  (S.D.)/36. The revised PGC morale scale indicated the high reliability of Cronbach's  $\alpha = 0.814$ . The mean of the revised PGC morale scale and happiness score were  $10.6 \pm 3.8$  (S.D.)/17 and  $72.0 \pm 19.0$  (S.D.)/100, respectively. Pearson's correlation coefficients between age, the total score of pleasant recreational activities, the revised PGC morale scale, and the happiness score are shown in Table 2. There was a strong relationship among the total score of the pleasant recreational activities, the revised PGC morale scale and the happiness score. Age showed a significant correlation with the happiness score. As for age-dependency of the recreational activities examined, age showed significant negative relationships with physical exercise ( $\rho = -0.187$ ,  $P = 0.004$ ) and joining club activities for older adults ( $\rho = -0.129$ ,  $P = 0.047$ ). An increase of difficulty in managing finances showed a negative relationship with the revised PGC morale scale ( $\rho = -0.244$ ,  $P < 0.001$ ) and the happiness score ( $\rho = -0.277$ ,  $P < 0.001$ ) by Spearman's rank correlation coefficients.

Table 2  
Pearson's correlation coefficients among age, total score of pleasant activities, PGC morale scale and happiness score

	Age	Total score of pleasant activities	PGC morale scale	Happiness score
Age	1	0.016 ( $P = 0.746$ )	0.033 ( $P = 0.497$ )	0.140 ( $P = 0.004$ )
Total score of pleasant activities	–	1	0.226 ( $P < 0.001$ )	0.311 ( $P < 0.001$ )
PGC morale scale	–	–	1	0.402 ( $P < 0.001$ )
Happiness score	–	–	–	1

Table 3 presents a comparison of the mean of the revised PGC morale scale and the happiness score by gender, living status, frequency with which the subject went out, and the presence of a hobby or hobbies. The mean of the revised PGC morale scale was significantly higher when the participants were living with a spouse, and when they had some hobbies. The mean of the happiness score was significantly higher when the participants were female, living with grandchildren, or living with parents. The results of the ANOVA conducted to compare the mean of the revised PGC morale scale and the happiness score by the social and demographic variables are shown in Table 4. The revised PGC morale scale was significantly lower when the older adults had experienced distress in their human relationships or had the physical pain. The happiness score was also significantly higher when they had a better economic status.

The rates of amount of pleasure taken in the activities and their association with the revised PGC morale scale and the happiness score are shown in Table 5. The activities are listed in order of the mean score of amount of pleasure in the table. Only three activities, including conversing with family, eating meals and traveling, showed a significant relationship with the revised PGC morale scale by Spearman's rank correlation analyses, but many activities showed a significant relationship with the happiness score. A single

Table 3  
Comparison of mean PGC morale scale and happiness score by gender and living status

Items	n (%)	PGC morale scale (/17)			Happiness score (/100)		
		Mean ± S.D.	T-value	P-value	Mean ± S.D.	T-value	P-value
<b>Gender</b>							
Women	189 (45.0)	11.0 ± 3.8	1.91	0.057	74.0 ± 19.0	-2.34	0.020
Men	231 (55.0)	10.3 ± 3.8			69.6 ± 18.9		
<b>Cohabital status</b>							
Living with somebody	26 (6.2)	9.2 ± 4.3	1.95	0.052	72.1 ± 19.2	0.46	0.648
Living alone	393 (93.8)	10.7 ± 3.7			70.3 ± 17.1		
Living with a spouse	321 (76.6)	10.8 ± 3.7	-2.04	0.042	71.6 ± 18.8	0.78	0.434
Living without a spouse	98 (23.3)	9.9 ± 3.8			73.3 ± 19.9		
Living with children	210 (50.1)	10.5 ± 3.7	0.54	0.567	73.2 ± 19.9	-1.32	0.189
Living without children	209 (49.9)	10.7 ± 3.9			70.8 ± 18.1		
Living with grandchildren	159 (37.9)	10.5 ± 3.6	0.37	0.714	75.3 ± 18.7	-2.83	0.005
Living without grandchildren	259 (62.0)	10.7 ± 3.9			69.9 ± 19.0		
Living with parents	25 (6.0)	10.9 ± 4.6	-1.03	0.302	76.9 ± 20.0	-4.40	<0.001
Living without parents	394 (94.0)	10.5 ± 3.7			68.7 ± 16.4		
<b>Frequency of going out</b>							
<Once a week	288 (69.6)	10.4 ± 3.7	0.92	0.360	70.7 ± 19.5	1.03	0.305
≥Once a week	126 (30.4)	10.8 ± 3.7			72.8 ± 18.5		
<b>Presence of hobby</b>							
Yes	197 (47.1)	11.2 ± 3.7	-3.17	0.002	74.4 ± 17.4	-2.74	0.006
No	221 (52.9)	10.0 ± 3.7			69.3 ± 20.4		
Total		10.6 ± 3.8			72.0 ± 19.0		

Table 4  
Influence of social and demographic variables on PGC morale scale and happiness score

	n (%)	PGC morale scale	Happiness Score
Presence of physical pain			
None	149 (35.6)	12.0	] P = 0.001 ] P < 0.001
Sometimes	129 (30.9)	10.4	
Always	140 (33.5)	9.5	
Distress in human relationship			
No	311 (74.4)	11.0	] P < 0.001 ] P = 0.007
Sometimes yes	73 (17.5)	10.4	
Yes	34 (8.1)	8.0	
Former occupation			
Agriculture, fishing, or forestry	156 (37.1)	10.3	71.3
Office worker	135 (32.3)	11.1	72.5
No occupation (including house wife)	59 (14.1)	9.9	70.2
Self-employed, or others	69 (16.5)	11.0	74.3
Present occupation			
Agriculture, fishing, or forestry	156 (37.2)	10.6	70.9
Office worker	19 (4.5)	10.8	66.8
No occupation (including house wife)	209 (49.9)	10.6	74.0
Self-employed, or others	35 (8.4)	11.1	67.5

regression model extracted many activities as significant variables for predicting the happiness score, whereas it did not indicate any activities as being a significant variable for predicting the revised PGC morale scale.

Multiple linear regression analyses indicated that the amount of pleasure for exercise (standardized  $\beta = 0.426$ ), the difficulty in managing finances (standardized  $\beta = -0.256$ ), and the amount of pleasure taken in watching TV (standardized  $\beta = 0.242$ ) were significant variables for predicting the happiness score with an adjusted  $R^2$  of 0.357 ( $P < 0.001$ ).

#### 4. Discussion

As the present study was carried out in a rural area, some idiosyncratic results were obtained. Many older adults in this area have continued to work, and most of them work for a primary resource industry such as farming or forestry. The happiness score showed a significantly high correlation with the revised PGC morale scale, reflecting its validity as a QOL indicator. The mean of the revised PGC morale scale was similar to the ones obtained in previous Japanese studies (Koyano, 1981; Maeda et al., 1989; Yasunaga and Tokunaga, 2001). Additionally, as shown in Maeda's study, the difficulties in managing finances showed a high negative correlation with both the revised PGC morale scale and the happiness score. Furthermore, the importance of having a hobby and the presence of cohabitants was suggested by the significant association of these two variables with both the revised PGC morale scale and the happiness score.



Table 5  
The relationship of pleasant degrees for the activities with PGC morale scale and happiness score

Items	Rate				Standardized $\beta$ coefficient by a single regression model			
	$n^a$	Very pleasant (%)	Moderately pleasant (%)	Not pleasant (%)	PGC morale scale	P-value	Happiness score	P-value
Bathing	408	24.6	73.9	1.5	0.039		0.139	0.005
Traveling	314	24.8	72.4	2.9	0.141	0.012	0.231	<0.001
Singing	218	20.6	75.2	4.1	0.083		0.227	0.001
Gardening	385	19.1	76.0	4.9	0.028		0.184	<0.001
Watching TV	410	14.8	83.7	1.5	-0.001		0.189	<0.001
Eating meals	411	16.0	81.4	2.7	0.126	0.010	0.179	<0.001
Playing with animals	179	17.2	77.2	5.6	0.066		0.145	0.015
Relaxing at home	376	13.8	83.9	2.4	0.031		0.125	<0.001
Working	390	16.3	78.6	5.1	0.039		0.194	<0.001
Conversation with neighbors	298	13.3	84.0	2.8	0.083		0.242	<0.001
Fishing	93	16.0	77.7	6.4	0.058		0.053	
Listening to music	272	11.3	85.8	2.9	0.033		0.081	
Joining club activities for older adults	237	15.5	76.6	7.9	0.079		0.273	<0.001
Conversation with family	485	12.7	81.9	5.4	0.147	0.004	0.274	<0.001
Reading	214	11.7	83.6	4.7	0.063		0.059	
Walking	254	12.2	82.4	5.5	0.106		0.172	0.006
Exercise	235	9.7	84.7	5.5	-0.042		0.150	0.022
Gambling	66	18.2	66.7	15.2	-0.147		-0.147	<0.001

<sup>a</sup> Number of participants excluding those who have never done the activities or those with no answer.

Some of the amount of pleasure for the activity such as conversation with family or neighbors showed significant correlations with the happiness score but not the revised PGC morale scale. This may give a rationale to believe that the happiness score is a more subjective measurement than the revised PGC morale scale, which can be influenced by the relative circumstances of their living environment. Thus, we presumed that a subjective measurement can sometimes better reflect the QOL of older adults than a structurally fixed scale. It is important for recreational service providers to support older adults in increasing the pleasure they take in activities, and in developing a hobby, in order to increase their happiness, which will eventually help increase their QOL.

Previously, De Gracia and Marco (2000) reported a significant relationship between the physical activity enjoyment scale developed by Kendzierski and DeCarlo (1991), and psychological well-being. However, it is irrelevant to use the scale for older adults, given that the scale was developed for healthy young population. The scale rating the amount of pleasure experienced when participating in the activities listed in the present study is more suitable for an elderly population.

Furthermore, Nakanishi and Tatara (2000) reported that mortality was lower among people who took part in social activities than those who did not. As Bozzola et al. (1992) have reported on the personality change occurring in patients in the early stage of dementia of Alzheimer's type, assessment of amount of pleasure for activities can be a useful indicator of the progress of the dementia. These results also suggest the importance of giving older adults the opportunity to participate in various activities.

In conclusion, the results indicate that the amount of pleasure older adults experienced when participating in daily and recreational activities, such as conversing with family or neighbors, showed a significant association with the older adults' happiness. The present results also suggest that the presence of cohabitants and a hobby play an important role in the QOL. These results may be helpful in understanding contributions of various activities to the perception of pleasure in older adults, therefore, can be useful when care providers consider supplying adequate recreational services.

### Acknowledgement

We would like to thank all the staffs of the health care center of Wara village, where this study was carried out, for their cooperation.

### References

- Annual Report on the Aging Society, 2002. Cabinet Office, Tokyo (in Japanese).
- Bozzola, F.G., Gorelick, P.B., Freels, S., 1992. Personality changes in Alzheimer's disease. *Arch. Neurol.* 49, 297–300.
- De Gracia, M., Marco, M., 2000. Psychological effects of physical activity in elderly people. *Psicothema* 12, 285–292.
- Kendzierski, D., DeCarlo, K.J., 1991. Test-reliability; pleasure; boredom; measurement; method; physical-activity-enjoyment-scale. *J. Sport Exer. Psychol.* 13, 50–64.
- Koyano, W., 1981. An analysis of the revised Philadelphia Geriatric Center morale scale. *Jpn. J. Gerontol.* 3, 83–95 (in Japanese).

- Lawton, M.P., 1975. The Philadelphia Geriatric Center morale scale: a revision. *J. Gerontol.* 30, 85–89.
- Life Design White Paper, 1999. Life Design Institute, Tokyo (in Japanese).
- Maeda, D., Noguchi, Y., Tamano, K., Nakatani, Y., Sakata, S., Liang, J., 1989. Structure and possible causes of subjective well-being of Japanese elderly. *Soc. Gerontol.* 30, 3–16 (in Japanese).
- Nakanishi, N., Tatara, K., 2000. Correlates and prognosis in relation to participation in social activities among older people living in a community in Osaka, Japan. *J. Clin. Geropsychol.* 6, 299–307.
- Onishi, J., Masuda, Y., Suzuki, Y., Endo, H., Iguchi, A., 2005. Philadelphia Geriatric Center moral scale in a Japanese nursing home for the elderly. *Geriatr. Gerontol. Int.* 5, 71–73.
- Yasunaga, A., Tokunaga, M., 2001. The relationships among exercise behavior, functional ADL, and psychological health in the elderly. *J. Physiol. Anthropol. Appl. Human Sci.* 20, 339–343.

# A Comparison of Depressive Mood of Older Adults in a Community, Nursing Homes, and a Geriatric Hospital: Factor Analysis of Geriatric Depression Scale

Joji Onishi, MD, Yusuke Suzuki, MD, PhD, Hiroyuki Umegaki, MD, PhD, Hidetoshi Endo, MD, PhD, Takashi Kawamura, MD, PhD, and Akihisa Iguchi, MD, PhD

---

## ABSTRACT

The Geriatric Depression Scale (GDS)-15 was used in 607 adults aged 65+ years living in a community, nursing homes, and a general hospital to explore characteristics of depressive mood in different care settings. Factor analysis of GDS-15 extracted 4 factors labeled unhappiness, apathy and anxiety, loss of hope and morale, and energy loss. The scale scores labeled unhappiness, apathy and anxiety, and loss of hope and morale were negatively correlated with the Barthel Index and the Mini-Mental State Examination scores. The results classified the depressive patterns into 2 types, one fitting the nursing home residents and the other fitting the hospital patients. The dominant factors of the nursing-home type were unhappiness and loss of hope and morale, and the hospital type was highly related with apathy and anxiety. The results indicate an extended utility of the GDS-15 for a deeper understanding of depressive mood in various care settings. (*J Geriatr Psychiatry Neurol* 2006;19:26-31).

**Keywords:** depressive mood; Geriatric Depression Scale; factor analysis

---

Depression is one of the most common and insidious problems for older adults, including those in long-term care settings. Although nursing home residents and geriatric hospital patients often receive comprehensive assessments involving instruments programmed to evaluate depression, it has been suggested that clinicians tend to underestimate the presence of depression, possibly because depressive symptoms may be assumed to be a

Received January 28, 2005. Received revised June 13, 2005. Accepted for publication June 13, 2005.

From the Department of Geriatrics, Nagoya University Graduate School of Medicine, Nagoya, Japan (Drs Onishi, Suzuki, Umegaki, and Iguchi); Department of Comprehensive Geriatric Medicine, National Center for Geriatrics and Gerontology, Aichi, Japan (Dr Endo); and Kyoto University Health Service, Yoshida-honmachi, Kyoto, Japan (Dr Kawamura).

This study was supported by Grant-in-Aid for Scientific Research, titled Clinical Research for Evidence Based Medicine from the Ministry of Health, Labour and Welfare. We would like to thank all the staff of the health care center of Tsukude village, where this study was carried out, for their cooperation.

Address correspondence to Joji Onishi, MD, Department of Geriatrics, Nagoya University Graduate School of Medicine, 65 Tsuruma-Cho, Showa-Ku, Nagoya, Aichi, 466-8550, Japan; e-mail: j-onishi@med.nagoya-u.ac.jp.

DOI: 10.1177/0891988705284725

part of normal aging, not related to the disease of depression, and therefore are sometimes overlooked.<sup>1</sup> We previously reported on the relationship between functional disabilities and depressive mood in older patients admitted to the geriatric ward of a general hospital using factorial analysis.<sup>2</sup> The results clarified factorial components of the Geriatric Depression Scale (GDS)-15,<sup>3</sup> which consists of 4 major factors. Two of those factors, "loss of morale and hope" and "memory loss and reduction of social activity," were significantly correlated with the presence of functional disabilities; thus, we concluded that depression associated with physical and/or cognitive handicaps could be reflected in patterns of GDS scores. However, as suggested in our report, the features of depression affected by acute medical conditions in hospitalized elderly patients may not always be generalized to older adults living in a community or other long-term care settings.

In this study, we extended this line of research to include a community and several nursing homes, both to apply this new and easy method using factorial analysis and to clarify the differences in patterns of depressive mood among these 3 settings.

Table 1. Profiles of the Participants in Three Settings

	<i>N</i>	<i>Age</i>	<i>Basic ADL</i>	<i>MMSE</i>	<i>GDS-15</i>
Community	184	71.5 ± 7.5	19.7 ± 0.8	27.9 ± 0.4 <sup>a</sup>	5.1 ± 3.5
Nursing homes	178	82.4 ± 5.1	13.8 ± 4.6	21.0 ± 4.5	8.6 ± 2.1
General hospital	245	77.4 ± 6.6	17.7 ± 4.0	25.7 ± 4.2	5.7 ± 3.8
Total	607	79.4 ± 9.6	17.2 ± 4.2	24.7 ± 4.4	6.4 ± 3.6

Note: ADL = activities of daily living; MMSE = Mini-Mental State Examination; GDS = Geriatric Depression Scale.

a. MMSE was measured in 22 randomly sampled older adults in the community. The comparative analysis including residents in the community was not performed.

\*\**P* < .01

## METHODS

### Participants and Measurements

We sampled 928 adults aged 65 years or over. Among these, we consecutively enrolled 184 community-dwelling residents in Tsukude village, a rural village in central Japan, 389 residents in 4 nursing homes (mean length of stay, 409 ± 313 days at the survey), and 355 patients admitted to the geriatric ward of a teaching general hospital. In the community, data were collected from physically and cognitively independent volunteers visiting a health care center for an annual health check. All participants were asked to complete the Japanese version of short form GDS-15<sup>4</sup> and the Barthel Index<sup>5</sup> to assess their basic activities of daily living (ADL), with the assistance of attending staff if necessary. The GDS-15 is a well-established assessment scale for depressive mood, consisting of 15 self-administered alternative (yes/no) questions. A higher score indicates a greater degree of depressive mood with a cutoff score set at 6/6+.<sup>6</sup> All nursing home residents and all hospital patients underwent the Mini-Mental State Examination (MMSE),<sup>7</sup> administered by the attending doctors for hospital patients and by nurses for nursing home residents. In the community, because of availability of staff, MMSE was measured in 22 randomly sampled older adults to represent their cognitive status. Participants who were unable to answer the questionnaires because of acute illness and those who declined to cooperate with the study were excluded. Also in accordance with previous reports<sup>8,9</sup> regarding the validity of the GDS, participants who scored below 15 on the MMSE were excluded. As a result, 211 nursing home residents and 110 hospital patients were not included, and the data of remaining 607 participants (female 56.7%; mean age 77.1 ± 8.0 SD) were used for analysis.

### Statistical Analysis

Correlation coefficients were calculated by Pearson's method for parametric data and by Spearman's method for nonparametric data. Differences in continuous variables among more than 2 groups were determined by a one-way analysis of variance, and Tukey's test was used for subsequent multiple comparisons. Kruskal-Wallis test was used for categorical comparisons of the nonparametric

data. The internal consistency of the GDS-15 was calculated with Cronbach's  $\alpha$ . The principal factor analysis for the GDS-15 was performed with an eigenvalue of 1.0 or more as the extraction criterion, and factors were identified after varimax rotation. Scale scores were calculated by counting the number of scored items belonging to the factors extracted from the GDS-15. Values of *P* < .05 were considered to indicate statistical significance, and all tests were 2-tailed. All statistical analyses were performed on a personal computer with the statistical software package SPSS for Windows version 11.0 (SPSS Inc, Chicago, IL).

## RESULTS

Table 1 shows the mean age, basic ADL, MMSE, and GDS-15 scores for each group of participants. Basic ADL and MMSE scores were highest in the community and lowest in the nursing homes. The mean GDS-15 score of all the participants was 6.4 ± 3.6 SD, and 49.7% of them scored above 6. The GDS-15 score was significantly higher in the nursing homes than in the other settings, and no fewer than 87.6% of the nursing home residents had a GDS-15 score above 6.

Table 2 shows depressive response rate (the rate of respondents who had an alternative choice representing depressive mood) for each GDS-15 item in the 3 groups. Nursing home residents scored significantly higher than the other 2 participant groups on the following 10 of the 15 items: satisfied, dropped activities, emptiness, often bored, in good spirits, feels happy, prefers to stay in, wonderful to be alive, feels worthless, and feels situation is hopeless. "Full of energy" was the only item in which the hospital patients scored highest. The internal consistency of the GDS-15 was high, with Cronbach's  $\alpha$  being .778. The factor analysis of GDS-15 extracted 4 factors, whose loading values are shown in Table 3. Factor I represented "unhappiness," which included the items 1, satisfied; 5, in good spirits; 7, feels happy; and 11, wonderful to be alive. Factor II, labeled "apathy and anxiety," was made up of 6 items: 2, dropped activities and interest; 3, emptiness; 4, often bored; 6, afraid something bad will happen; 8, often feels helpless; and 15, most people better off than self. Factor III, labeled "loss of hope and morale," included 4 items: 9, prefers to stay in; 10, more problems with memory than most; 12, feels worthless; and 14, feels situation is

**Table 2. Depressive Response per Group to Each Geriatric Depression Scale-15 Item**

	Community	Nursing Homes	General Hospital	Kruskal-Wallis Test (P)
1. Satisfied	26.0	<b>75.1</b>	19.8	<.001
2. Dropped activities and interest	40.0	<b>55.9</b>	51.3	<.001
3. Emptiness	18.9	<b>41.7</b>	33.9	<.001
4. Often bored	15.4	<b>46.0</b>	28.9	<.001
5. In good spirits	33.4	<b>88.1</b>	21.8	<.001
6. Afraid something bad will happen	40.2	50.3	<b>50.6</b>	.076
7. Feels happy	28.7	<b>81.8</b>	21.9	<.001
8. Often feels helpless	52.6	<b>68.6</b>	63.0	.007
9. Prefers to stay in	43.4	<b>60.8</b>	43.0	<.001
10. More problems with memory than most	<b>66.3</b>	64.4	54.0	.021
11. Wonderful to be alive	27.0	<b>65.9</b>	22.2	<.001
12. Feels worthless	17.2	<b>41.8</b>	28.9	<.001
13. Full of energy	46.0	33.5	<b>63.1</b>	<.001
14. Feels situation is hopeless	30.9	<b>52.5</b>	43.2	<.001
15. Most people better off than self	29.7	<b>33.0</b>	30.8	.795

Note: Bold indicates highest; italic indicates lowest.

**Table 3. Principal Factor Analysis (Varimax) of the Geriatric Depression Scale-15**

Item	Factor I Unhappiness	Factor II Apathy and Anxiety	Factor III Loss of Hope and Morale	Factor IV Energy Loss
1. Satisfied	0.776			
2. Dropped activities and interest		0.413		
3. Emptiness		0.756		
4. Often bored		0.532		
5. In good spirits	0.746			
6. Afraid something bad will happen		0.421		
7. Feels happy	0.771			
8. Often feels helpless		0.385		
9. Prefers to stay in			0.280	
10. More problems with memory than most			0.247	
11. Wonderful to be alive	0.684			
12. Feels worthless			0.567	
13. Full of energy				0.475
14. Feels situation is hopeless			0.690	
15. Most people better off than self		0.418		
Explained variance	2.3	1.8	1.4	0.5
Cumulative percentage of variance explained	15.3	27.5	36.8	40.3

Note: The factor score was calculated by a regression method, which cumulated factor loadings of all items of Geriatric Depression Scale-15.

hopeless. Factor IV, labeled "energy loss," included the item 13, full of energy. The cumulative percentage of variance explained was 40.3%.

The GDS-15 score had a significant negative correlation with basic ADLs (Pearson's  $r = -.304$ ,  $P < .001$ ) and with MMSE score ( $r = -.220$ ,  $P < .001$ ), but not with age. Table 4 shows the correlations between the scale score of each factor extracted from GDS-15 and age, basic ADL, and MMSE score. The scale scores of factors I, II, and III were negatively correlated with basic ADL and MMSE scores, whereas that of factor IV showed significant positive correlations with basic ADL and MMSE scores.

Based on the results of the scale-score calculations, a radar chart was created to analyze patterns in the GDS-15 scores. Figure 1 illustrates the patterns of 3 care settings. The pattern in nursing homes was wide above and below, indicating large contributions of Factors I (unhappiness) and III (loss of hope and morale) to the participants'

depressive mood. On the other hand, the pattern in the general hospital had a sharply pointed shape, which suggested the large contribution of factor II (apathy and anxiety).

## DISCUSSION

In the present study, most of the nursing home residents were in a depressive mood. Their average GDS-15 score was  $8.6 \pm 2.1$  SD, higher than in the studies of nursing home residents by Sutcliffe et al,<sup>10</sup> Casarett et al,<sup>11</sup> and Rinaldi et al,<sup>12</sup> which showed averages of  $5.4 \pm 3.2$  SD,  $5.6 \pm 4.4$  SD, and  $6.7 \pm 3.8$  SD, respectively. With an intent to secure the validity of the GDS-15, we excluded participants with moderate and severe cognitive impairment. Rinaldi et al included participants with MMSE scores of 5 or higher (mean MMSE score  $20.0 \pm 6.1$  SD), and Sutcliffe et al had no exclusion criteria based on MMSE score.

Table 4. Correlation Coefficients Between the Scale Scores of the Factors Extracted From GDS-15 and Age, Basic ADL, and MMSE Score

Item	Factor I Unhappiness	Factor II Apathy and Anxiety	Factor III Loss of Hope and Morale	Factor IV Energy Loss
Age	.065 $P = .131$	.273* $P < .001$ *	.043 $P = .322$	-.095* $P = .027$ *
Basic ADL	-.374* $P < .001$ *	-.167* $P < .001$ *	-.169* $P < .001$ *	.108* $P = .010$ *
MMSE	-.263* $P < 0.001$ *	-.098* $P = .017$ *	-.164* $P < .001$ *	.083* $P = .043$ *

Note: GDS = Geriatric Depression Scale; ADL = activities of daily living; MMSE = Mini-Mental State Examination. Correlation coefficients between age and the factors were calculated by Spearman's method, and those between basic ADL, MMSE and the factors were calculated by Pearson's method.

\*  $P < .05$ .

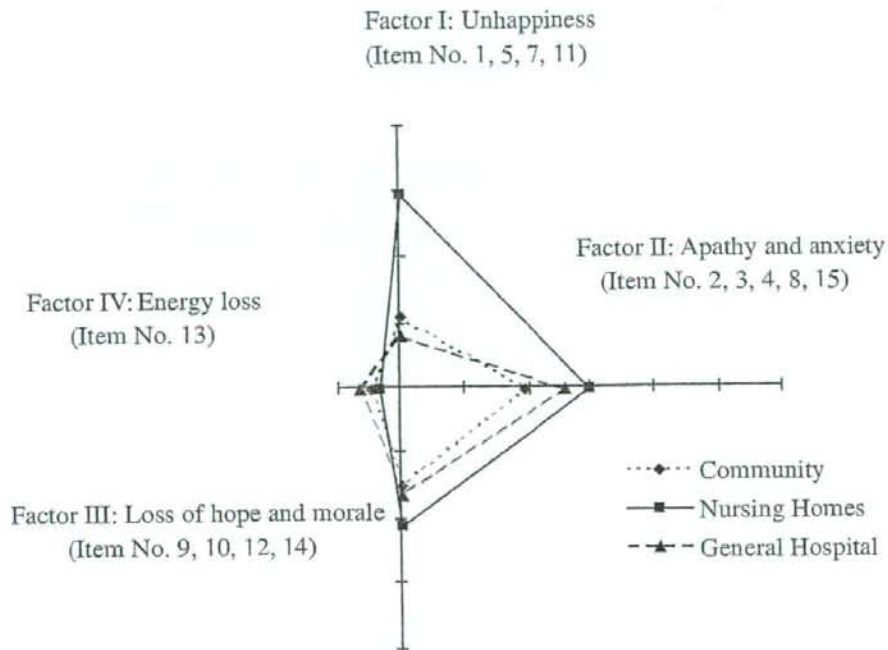


Figure 1. The factorial pattern on a Geriatric Depression Scale (GDS)-15 radar chart for the participants in a community, nursing homes, and a general hospital.

On the other hand, Casarett's samples had higher cognitive abilities (mean MMSE score  $27.4 \pm 1.7$  SD) than our participants. Thus, higher average GDS-15 score in the present study relative to the above reports may be attributable to variability of participants' cognitive status. Another explanation for the discrepant results may be that because there was a wide range in the residents' length of stay, our study may have included participants who were still in their transitional period trying to adjust to the nursing home environment. Therefore, our results may not necessarily reflect persistent psychological status of nursing home residents. On the other hand, hospital patients showed significantly higher GDS-15 scores than the community residents, which is consistent with the

previous findings suggesting that acute medical conditions or exacerbations of chronic illnesses may be associated with depressive mood.<sup>18-19</sup>

The present study revealed that depressive symptoms in older adults are common in long-term care settings. The factorial analysis demonstrated clear associations of physical/cognitive status with depressive mood. The results of this study showed a similar factorial structure of GDS-15, which is comparable to the results of a previous Japanese study<sup>6,16</sup> as well as those reported from countries with different ethnicities.<sup>17-19</sup> All of the factors extracted from GDS-15 had rather weak but significant correlations with basic ADL and MMSE scores. In particular, Factors I (unhappiness) and III (loss of hope and morale) showed

stronger negative correlations with basic ADL and MMSE scores than the other factors. These findings indicate that Factors I and III can be especially enhanced by physical and/or mental disabilities; thus, these factors may be associated with secondary depression.

As shown in the radar chart, it is interesting that the pattern of GDS-15 scores in the nursing homes was vertically wide, indicating strong contributions by Factors I (unhappiness) and III (loss of hope and morale) to depressive moods, whereas the pattern in the hospital was extended far out to the right relative to other factors, indicating a relatively strong contribution by Factor II (apathy and anxiety). Thus, when older adults show the nursing-home type depressive pattern with dominant factors influenced highly by functional handicaps, clinicians should endeavor to alleviate the handicaps—for example, by improving the care environment through more adequate care services or extending the patient's remaining functional abilities. On the other hand, when older adults show the hospital-type depressive pattern, clinicians should pay attention to the temporary nature of depressive moods derived from acute physical or mental deterioration. An understanding of the differences in depressive patterns can be useful in formulating clinical interventions. However, a limitation of this study is that it did not take the time course of functional disabilities of the study sample into consideration. Ormel et al.<sup>20</sup> clarified that basic ADL/instrumental ADL disability and depression are mutually reinforcing over time in a community-based cohort study. Therefore, a speculation arises, regarding the structural difference of depressive mood in different care settings, that it may be the length of time participants have been suffering from functional disabilities, not their environment of care, that explains the difference we observed in this study. Longitudinal studies tracking hospital inpatients who move into nursing homes for the assessment of changes in their depressive mood would be necessary to address this issue. The other limitation is that the findings do not address the influence of quality of care or treatment on depressive mood of the study participants. An interventional approach may clarify whether the environment of care can affect depressive mood of older adults with functional disabilities.

In summary, we carried out a factorial analysis of GDS-15 in older adults in a community, nursing homes, and a geriatric ward of a general hospital and extracted 4 factors, labeled unhappiness, apathy and anxiety, loss of hope and morale, and energy loss. Among the 3 settings, depressive mood was observed most frequently in the nursing homes. The depressive patterns of GDS-15 scores were classified into 2 types, 1 fitting the nursing home residents and the other fitting the hospital patients. The dominant factors of the nursing-home type depressive pattern were unhappiness and loss of hope and morale, which were influenced highly by the participants' func-

tional handicaps, and the hospital-type depressive pattern was highly related to apathy and anxiety. The results indicate an extended utility of the GDS-15 for a deeper understanding of depressive mood in different care settings; this instrument may help staff and clinicians to more accurately identify those who are depressed and initiate an appropriate treatment intervention.

## References

1. Jackson R, Baldwin B. Detecting depression in elderly medically ill patients: the use of the Geriatric Depression Scale compared with medical and nursing observations. *Age Ageing* 1993;22:349-353.
2. Onishi J, Umegaki H, Suzuki Y, et al. The relationship between functional disability and depressive mood in Japanese older adult inpatients. *J Geriatr Psychiatry Neurol* 2004;17:93-98.
3. Yesavage JA. The use of self-rating depression scales in the elderly. In: Poon LW, ed. *Clinical memory assessment of older adults*. Washington, DC: American Psychological Association, 1986:213-217.
4. Niino N, Imaizumi T, Kawakami N. A Japanese translation of Geriatric Depression Scale. *Clin Gerontol* 1991;10:85-87.
5. Mahoney FI, Barthel DW. Functional evaluation: the Barthel Index. *Md State Med J* 1965;14:61-65.
6. Schreiner AS, Hayakawa H, Morimoto T, et al. Screening for late life depression: cut-off scores for the Geriatric Depression Scale and the Cornell Scale for Depression in Dementia among Japanese subjects. *Int J Geriatr Psychiatry* 2003;18:498-505.
7. Folstein MF, Folstein SE, McHugh PR. "Mini-mental state." A practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res* 1975;12:189-198.
8. McGivney SA, Mulvihill M, Taylor B. Validating the GDS depression screen in the nursing home. *J Am Geriatr Soc* 1994;42:490-492.
9. Katz IR. Diagnosis and treatment of depression in patients with Alzheimer's disease and other dementias. *J Clin Psychiatry* 1998;59:38-44.
10. Sutcliffe C, Cordingley L, Burns A, et al. A new version of the geriatric depression scale for nursing and residential home populations: the geriatric depression scale (residential) (GDS-12R). *Int Psychogeriatr* 2000;12:173-181.
11. Casarett DJ, Hirschman KE, Miller ER, et al. Is satisfaction with pain management a valid and reliable quality indicator for use in nursing homes? *J Am Geriatr Soc* 2002;50:2029-2034.
12. Rinaldi P, Mecocci P, Benedetti C, et al. Validation of the five-item geriatric depression scale in elderly subjects in three different settings. *J Am Geriatr Soc* 2003;51:694-698.
13. Kennedy GJ, Kelman HR, Thomas C. The emergence of depressive symptoms in late life: the importance of declining health and increasing disability. *J Community Health* 1990;15:93-104.
14. Beekman AT, Deeg DJ, Smit JH, et al. Predicting the course of depression in the older population: results from a community-based study in The Netherlands. *J Affect Disord* 1995;16:41-49.
15. Schoevers RA, Beekman AT, Deeg DJ, et al. Risk factors for depression in later life: results of a prospective community based study (AMSTEL). *J Affect Disord* 2000;59:127-137.
16. Yatomi N. The factor structure and item characteristics of the GDS (Geriatric Depression Scale) short version in a Japanese elderly sample. *Gerontol Sociol* 1994;16:29-36.
17. Fountoulakis KN, Tsolaki M, Iacovides A, et al. The validation of the short form of the Geriatric Depression Scale (GDS) in Greece. *Aging Clin Exp Res* 1999;11:367-372.



18. Lai DW. Measuring depression in Canada's elderly Chinese population: use of a community screening instrument. *Can J Psychiatry* 2000;45:279-284.
19. Jang Y, Small BJ, Haley WE. Cross-cultural comparability of the Geriatric Depression Scale: comparison between older Koreans and older Americans. *Aging Ment Health* 2001;5:31-37.
20. Ormel J, Rijdsdijk FV, Sullivan M, et al. Temporal and reciprocal relationship between IADL/ADL disability and depressive symptoms in late life. *J Gerontol B Psychol Sci Soc Sci* 2000;57:338-347.

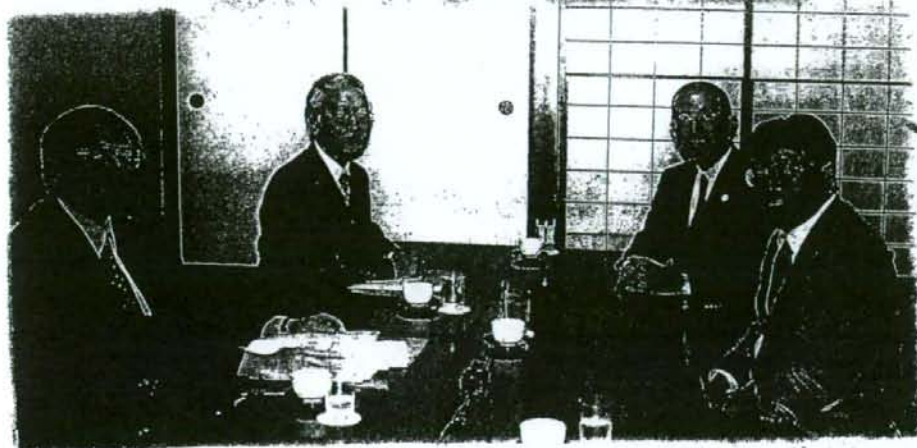
座  
談  
会

## 高齢者の医療と介護保険 制度，何を指すのか？

鳥羽 研二  
川 渕 孝一  
天本 宏  
井藤 英喜

座談会

# 高齢者の医療と介護保険制度，何を指すのか？



(2006年12月12日東京會館「八千代」にて収録)

鳥羽 研二

(杏林大学医学部高齢医学講座<sup>1)</sup>教授)

川淵 孝一

(東京医科歯科大学大学院医療経済学分野<sup>2)</sup>教授)

天本 宏

(日本医師会<sup>3)</sup>常任理事)

井藤 英喜(司会)

(東京都老人医療センター<sup>4)</sup>院長，東京都老人総合研究所<sup>4)</sup>所長)

(敬称略，発言順)

Contents

- 高齢者の受診状況および今後の動向
- 介護保険の利用状況・問題点および今後の動向
- 医療制度改革
- 国民皆保険制度の崩壊
- 介護保険制度の理念
- 予防医学と経済
- おわりに

<sup>1)</sup>〒181-8611 東京都三鷹市新川 6-20-2

<sup>2)</sup>〒113-8549 東京都文京区湯島 1-5-45

<sup>3)</sup>〒113-8621 東京都文京区本駒込 2-28-16

<sup>4)</sup>〒173-0015 東京都板橋区栄町 35-2

井藤(司会) 本日はお忙しい中、お集まりいただきましてありがとうございます。

医療制度改革関連法案が国会を通過し、保険制度が大きく変わろうとしています。本日は、虚弱老人、高齢者の実態、医療への受診状況とその動向、介護保険の問題点、今後保険はどういうことを目指して制度を構築していったらいいのかということなどについて、先生方のご意見をお伺いしたいと思います。

まず、わが国における要介護状態にある虚弱老人の実態、今後それがどのように増えていくと予想されているのかというようなことを鳥羽先生からお話頂けますでしょうか。

鳥羽 現在、要介護の対象は280万人といわれています。自立している人は9割近く、虚弱の人は13%という介護保険以前のデータがあり、それに高齢者人口の2,200万人をかけると、だいたい同じ数が出てきているようです。平成25(2013)年の高齢者のピーク時には3,300万人、要介護高齢者は500万人くらいになるのではないかとされています。特に75歳以上の後期高齢者、85歳以上の超高齢者が増える点の特徴かと思えます。一部のデータですが、自立度自体は年々改善してきています。特に香北町(現 高知県香美市)の松林先生のデータでは、1997年までの10年間で、いわゆる依存の度合いをみると、依存の平均値が10歳高齢になっているというデータがあります。ですから、虚弱な人は13%よりも同じ年代では少なくなると思われれます。一方、私が急性期病院でとったデータでは、90歳代では、一度、病気になると自立度を6割くらい失うというデータがあります。杏林大学病院高齢医学は、超高齢患者の多い病棟ですが(平均86歳)、それでも6割は自宅に帰ることができます。残りの4割は何からの依存が始まっている。そういう意味で、後期高齢者や超高齢者が増える場合に、虚弱から要介護の絶対的な人口は、増え続けるだろうということになります。さらに、虚弱な人が単に虚弱だけではなく、様々な疾患をもった方として、捉えなくてはいけないと思います。

井藤 高齢者の場合、介護という問題だけでは

なく、要医療という方の動向が、非常に大きな問題になってきます。厚生労働省(厚労省)の患者調査データによると、外来患者の43%、307万人が65歳以上、入院患者の64%、93万人が65歳以上であるということで、医療を必要とする人の中で65歳以上の人が占める割合が、非常に高くなってきています。

そのようなことで高齢者の医療制度のあり方が大きな問題になっているのですが、高齢者の受診状況、あるいは今後の動向予想ということに関しまして、川淵先生、いかがでしょうか。

---

### 高齢者の受診状況および今後の動向

---

川淵 医療経済学者の立場から申し上げます。いま65歳以上をもってして高齢者とするのか、老人保健制度でいう、70歳以上を高齢者と定義するのか。あるいは後期高齢者といわれる75歳以上の高齢者を1つターゲットにするのかと、高齢者の定義についても少し変わってくるのではないかと思います。

全体の医療費32兆円のうち、9兆200億円を75歳以上の人が使っています。これを1人当たりの医療費でみると、75歳以上の後期高齢者に関しては81万5,100円ということになります。65歳未満の方は平均15万2,700円、75歳以上の方は約5倍多くなります。65歳以上の方は、約65万円となり、65歳未満の約4倍になります。

医療費は、受診率、1件当たりの日数、1日当たりの診療費の3つに分解することが多いのですが、高齢者と若者で一番違う点は、受診率です。外来で2.7倍、入院では5.8倍も違います。高齢者は入院、外来ともに、受診率が高いのです(図1)。国はこれを問題視して、高齢者をターゲットに、保険料率を上げたり、自己負担を多くしたり、診療報酬に関しても、高齢者に対しては定額制を導入したりしているわけです。これが日本の高齢者医療費抑制化政策です。今後も、高齢者増加に伴い、自己負担率を上げる方向にあります。2006年10月から、年収