

Regular Article

Validation of ‘personal strain’ and ‘role strain’: Subscales of the short version of the Japanese version of the Zarit Burden Interview (J-ZBI_8)

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Abstract

The eight-item short version of the Japanese version of the Zarit Burden Interview (J-ZBI_8) has been confirmed for reliability and validity, and its two subscales (personal strain and role strain) are based on the factor structure of the ZBI. It has been demonstrated that these subscales have good reliability. The aim of the present study was to confirm their construct validity. A total of 51 impaired elderly who had been receiving regular nurses' visits in Kyoto Prefecture, Japan and their family primary caregivers, participated in the present study. Each caregiver was asked to complete a questionnaire which included the J-ZBI_8, the hours spent in caregiving, and the physical and cognitive disability of the impaired elderly. A principal component analysis identified the following two principal components of these variables: ‘Activities of Daily Living deficits’ and ‘behavioral disturbances’. Consequently, Barthel Index (BI) and Troublesome Behavior Scale (TBS) were selected as the representative variable, respectively, for each component. We subsequently calculated the Spearman's rank correlations among the subscales of J-ZBI_8, BI and TBS. Personal strain was found to be correlated with TBS ($\rho = 0.48, P < 0.01$), while role strain was correlated with the BI ($\rho = -0.29, P = 0.04$). The correlation between personal strain and BI was not significant, nor was the correlation between role strain and TBS. These findings indicate that the personal strain and role strain measured by J-ZBI_8 correspond to the personal strain and role strain of the ZBI originally described by Whitlatch *et al.* Therefore, the construct validity of the J-ZBI_8 subscales is confirmed.

Key words

Activities of Daily Living, behavioral disturbances, burden, caregivers, dementia, Japan, Zarit Burden Interview.

INTRODUCTION

The Zarit Burden Interview (ZBI) is the instrument most widely used in North America and Europe for assessing the burden experienced by family caregivers who look after the community-residing impaired elderly.^{1,2} The Japanese version of the ZBI (J-ZBI), developed by Arai and colleagues, has been widely used in

Japan for the same purpose.^{3,4} Recently, the eight-item short version of the J-ZBI, the J-ZBI_8, was developed by Arai and colleagues for easier administration of the instrument in clinical settings. The reliability and validity of the J-ZBI_8 have been confirmed,⁵ and cross-validation of the J-ZBI_8 has also been conducted in a different sample.⁶

The J-ZBI_8 consists of the following two subscales: personal strain (five items) and role strain (three items), which are based on the factor structure of the ZBI described by Whitlatch.⁷ Specifically, the ZBI is comprised of two factors which have been described as follows: personal strain means ‘how personally stressful the experience is’; and role strain is ‘the stress due to role conflict or overload’.^{7–9}

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So far, it has been demonstrated that the two subscales of the J-ZBI_8 (i.e. personal strain and role strain) have good reliability.^{5,6} However, the validity of these subscales has yet to be fully confirmed. Indeed, it has been stated that there is no one single study which can unequivocally prove construct validity and that construct validation is an ongoing process.¹⁰

Therefore, the aim of the present study was to elucidate the psychometric properties of the subscales of the J-ZBI_8, that is, personal strain and role strain, in order to confirm their construct validity.

METHODS

Subjects

As the first step, 53 impaired elderly were identified who had been registered with a practice nurse clinic attached to U general hospital in the vicinity of Kyoto City. In the second step, these 53 impaired elderly and their family principal caregivers were contacted by letter to explain the objectives of the present study. Informed consent was obtained from all of these pairs in March 2001. This study was endorsed by the ethical committee of the National Institute of Longevity Sciences. All of the primary caregivers were co-residing with the patients at the time. Among these 53 pairs, 51 pairs participated in the present study.

Measures

Each caregiver was asked to complete a questionnaire in relation to the caregiving situation, their feelings of burden, and the disabilities of the impaired elderly under their care. Specifically, the questionnaire included: (i) questions regarding demographic variables of the caregivers and the patients; (ii) questions regarding the duration of caregiving and the hours spent in caregiving; (iii) the Japanese version of the Zarit Burden Interview (J-ZBI); and (iv) the physical and cognitive disability of the impaired elderly.

Caregivers were asked to indicate how many months' duration they had cared for the impaired elderly. They were then asked to estimate how many hours per day that they provided assistance for the Activities of Daily Living (ADL) of the impaired elderly, as well as how many hours per day they spent in supervising the elderly other than providing the ADL assistance. In addition, they were to estimate the number of hours per day they were able to be temporarily relieved of their duties and/or to leave the side of the patient and go out.

Caregivers' burden was assessed by the short version of the J-ZBI, that is, J-ZBI_8. The score of the J-ZBI_8

was calculated from the J-ZBI score obtained from the questionnaire distributed to the caregivers in the present study.

The ADL of the elderly was assessed using the Barthel Index (BI), the widely used 10-item ADL scale.^{11,12} Cognitive impairment of the elderly was assessed with the Japanese version of the Short-Memory Questionnaire (SMQ),^{13,14} a 14-item screening test for the assessment of memory difficulties found in dementia, with scores ranging from 0 to 46. The cut-off point for cognitive impairment was less than 40.^{14,15} The frequency of behavioral disturbances associated with dementia observed by primary caregivers of the elderly was assessed using the Troublesome Behavior Scale (TBS).^{16,17}

ANALYSIS

A principal component analysis was used to examine the structure of variables concerned with the caregiving of the impaired elderly, that is, hours of ADL assistance/day, hours of supervision/day, hours caregivers can go out/day, BI, SMQ, and TBS. The principal components were retained when their eigenvalues were greater than 1.0, yielding two principal components. We then selected variables which showed the highest loading for each principal component. We subsequently calculated the Spearman's rank correlation coefficients among the above-selected variables. Personal strain and role strain, the J-ZBI_8 subscales, were employed in order to identify differences between them.

Statistical significance was set at $P < 0.05$. SPSS (version 11.5.1 J; SPSS Inc. Chicago, Illinois, USA) was used for the above statistical analyses.

RESULTS

Table 1 shows the characteristics of the subjects in our study. The mean age of the impaired elderly was 79.5 (SD 9.5) years old, and 65% were female. The mean age of the caregivers was 60.4 (SD 13.4) years old, and 75% were female. The mean score of the J-ZBI_8 was 13.4 (SD 7.8); the mean score of personal strain was 7.6 (SD 5.0); and that of role strain was 5.8 (SD 3.7). A total of 46 out of the 51 impaired elderly who scored less than 39 on the SMQ were regarded as having some memory difficulties. The average hours spent for ADL assistance/day was 3.1 (SD 2.8), while the hours spent for supervision was 1.4 (SD 2.8), which was half the time spent for ADL assistance.

As shown in Table 2, the principal component analysis yielded two principal components which explained 65.5% of the total variance. On the basis of the item

loadings, the first component was regarded as related to the caring for the ADL deficits of the impaired elderly, and thus was labelled 'ADL deficits'. The second component was regarded as related to behavioral disturbances of the impaired elderly, which

Table 1. Characteristics of the impaired elderly and their caregivers

	Mean	SD
Impaired elderly		
Age	79.5	9.5
Barthel Index	8.0	6.3
SMQ	12.3	12.7
TBS	5.6	7.9
Caregivers	Mean	SD
Age	60.4	13.4
No. family members	3.1	1.8
Duration of caregiving (months)	55.0	52.0
Hours of ADL assistance per day	3.1	2.3
Hours of supervision per day	1.4	2.8
Hours caregivers can go out per day	2.9	2.8
J-ZBI 8	13.4	7.8
Personal strain	7.6	5.0
Role strain	5.8	3.7
Impaired elderly	No	%
Male	18	35.3
Female	33	64.7
Caregivers	No	%
Male	13	25.5
Female	38	74.5
Relationship		
Wife	14	27.5
Husband	5	9.8
Daughter	11	21.6
Son	6	11.8
Daughter-in-law	12	23.5
Other	3	5.9

SMQ: Short-Memory Questionnaire; TBS: Troublesome Behavior Scale.

we labeled 'behavioral disturbances'. The following two variables, which showed the highest loading on each principal component, were selected: BI from the first component, and TBS from the second component.

Table 3 presents Spearman's rank correlations among the subscales of J-ZBI_8, BI, TBS, and age of caregivers and impaired elderly. First, personal strain was correlated with TBS ($\rho = 0.48, P < 0.01$). Second, role strain was correlated with the Barthel Index ($\rho = -0.29, P = 0.04$). The correlation between personal strain and BI was not significant, nor was the correlation between role strain and TBS. Neither caregivers' age nor the age of the impaired elderly was correlated with the other variables.

DISCUSSION

The principal component analysis in the present study revealed that there were two principal components, that is, 'ADL deficits' and 'behavioral disturbances', among the variables concerned with the caregiving of the impaired elderly (Table 2).

It is assumed that 'ADL deficits', which includes the time constraints imposed by providing ADL assistance,

Table 2. Factor loading of variables concerning caregiving of impaired elderly

	Principal component	
	1	2
<i>Barthel Index</i>	-0.85	0.37
SMQ	-0.73	-0.19
Hours of ADL assistance/day	0.63	-0.25
Hours caregivers can go out/day	-0.62	-0.22
TBS	0.01	0.91
Hours of supervision/day	0.22	0.72
Eigenvalue	3.44	1.80
Contribution rate (%)	43.04	22.50

Table 3. Correlation coefficients among subscales of J-ZBI_8, Barthel Index, TBS, Caregivers' age and age of impaired elderly

	Personal strain	Role strain	Barthel Index	TBS	Caregivers' age	Age of impaired elderly
Personal strain	1.00					
Role strain	0.57**	1.00				
Barthel Index	-0.02	-0.29*	1.00			
Troublesome Behavior Scale	0.48**	0.20	0.32*	1.00		
Caregivers' age	-0.05	-0.01	-0.19	-0.12	1.00	
Age of impaired elderly	-0.16	-0.19	-0.03	-0.25	0.01	1.00

* $P < 0.05$; ** $P < 0.01$.

may have prevented caregivers from fulfilling any role but that of a caregiver. On the other hand, 'behavioral disturbances' are known to be related to caregivers' stress.^{18,19}

The analyses of the subscales of the J-ZBI_8 in the present study demonstrated a significant relationship between personal strain and TBS of the impaired elderly, while role strain was significantly related to their BI. Neither the correlation between personal strain and BI nor between role strain and TBS was significant (Table 3). These findings indicated that personal strain was related to 'behavioral disturbances', and role strain was related to 'ADL deficits'. Neither the correlation between personal strain and 'ADL deficits' nor between role strain and 'behavioral disturbances' was significant.

As mentioned above, 'behavioral disturbances' of the impaired elderly was associated with caregivers' stress. Therefore, it is postulated that personal strain, measured by the J-ZBI-8, reflects 'how personally stressful the experience is' as earlier described by Whitlatch *et al.*⁷

As stated above, 'ADL deficits' of the impaired elderly deterred a caregiver from fulfilling anything but his/her role as a caregiver. Thus, it is concluded that role strain, measured by the J-ZBI-8, is associated with the 'role conflicts' as described by Whitlatch *et al.*⁷

In conclusion, the present study revealed that personal strain and role strain, measured by J-ZBI-8, correspond to the description of these two factors of the ZBI originally described by Whitlatch *et al.* Therefore, the construct validity of the J-ZBI_8 subscales is confirmed.

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REFERENCES

- Zarit SH, Reever KE, Bach-Peterson J. Relatives of the impaired elderly: Correlates of feelings of burden. *Gerontologist* 1980; **20**: 649-655.
- Zarit SH, Zarit JM. *The Memory and Behavior Problems Checklist - 1987R and the Burden Interview*. Pennsylvania State University Gerontology Center, University Park, PA, 1990.
- Arai Y, Kudo K, Hosokawa T, Washio M, Miura H, Hisamichi S. Reliability and Validity of the Japanese version of the Zarit Caregiver Burden Interview. *Psychiatry Clin. Neurosc.* 1997; **51**: 382-387.
- Arai Y, Zarit SH, Sugiura M, Washio M. Patterns of outcome of caregiving for the impaired elderly: a longitudinal study in rural Japan. *Aging Ment. Health* 2002; **6**: 39-46.
- Arai Y, Tamiya N, Yano E. The short version of the Japanese version of the Zarit Caregiver Burden Interview (J-ZBI_8): its reliability and validity. *Jpn. J. Geriatr.* 2003; **40**: 497-503 (in Japanese).
- Kumamoto K, Arai Y, Ueda T, Washio M. Cross-validation of the short version of the Japanese version of the Zarit Caregiver Burden Interview (J-ZBI_8). *Jpn. J. Geriatr.* 2004; **41**: 204-210 (in Japanese).
- Whitlatch CJ, Zarit SH, Von Eye A. Efficacy of Interventions with caregivers: a reanalysis. *Gerontologist* 1991; **31**: 9-14.
- Bédard M, Molloy DW, Squire L, Dubois S, Lever JA, O'Donnell M. The Zarit Burden Interview: a new short version and screening version. *Gerontologist* 2001; **41**: 652-657.
- Hébert R, Bravo G, Prévile M. Reliability, validity and reference values of the Zarit Burden Interview for assessing informal caregivers of community-dwelling older persons with dementia. *Can. J. Aging* 2000; **19**: 494-507.
- Streiner DL, Norman GR. Validity. In: Streiner DL, Norman GR (eds). *Health Measurement Scales*. Oxford University Press, Oxford, UK, 1989; 106-125.
- Wade DT, Collin C. The Barthel ADL Index: a standard measure of physical disability? *Int. Disabil. Stud.* 1988; **10**: 64-67.
- Eto F. Assessments of physical function. In: Japan Geriatric Society (eds). *Textbook of Geriatric Medicine*. Revised. Medical View, Tokyo, 2002; 164-169 (in Japanese).
- Maki N, Ikeda M, Hokoishi K *et al.* Japanese version of the Short-Memory Questionnaire: memory evaluation in Alzheimer's disease. *Brain Nerve* 1998; **50**: 415-418 (in Japanese).
- Koss E, Paterson MB, Ownby R, Stuckey JC, Whitehouse PJ. Memory evaluation in Alzheimer's disease; caregivers' appraisals and objective testing. *Arch. Neurol.* 1993; **50**: 92-97.
- Maki N, Ikeda M, Hokoishi K *et al.* The validity of the MMSE and SMQ as screening tests for dementia in the elderly general population - a study of one rural community in Japan. *Dement. Geriatr. Cogn. Disord.* 2000; **11**: 193-196.
- Asada T, Yoshioka M, Morikawa S *et al.* Development of a Troublesome Behavior Scale (TBS) for the elderly patients with dementia. *Jpn. J. Public Health* 1994; **41**: 518-527 (in Japanese).
- Asada T, Kinoshita T, Morikawa S, Motonaga T, Kakuma T. A prospective five-year follow-up study on the behavioral disturbances of community-dwelling elderly.

- erly people with Alzheimer disease. *Alzheimer Dis. Assoc. Disord.* 1999; **13**: 202-208.
18. Donaldson C, Terrier N, Burns A. The impact of the symptoms of dementia on caregivers. *Br. J. Psychiatry* 1997; **170**: 62-68.
19. Pearlin LI, Mullan JT, Semple SJ *et al.* Caregiving and the stress process: An overview of concepts and their measures. *Gerontologist* 1990; **30**: 583-594.

Are there inequities in the assessment of dementia under Japan's LTC insurance system?

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SUMMARY

Background Just two years after its inception, Japan's Long-term Care (LTC) insurance system is facing considerable criticism about whether or not it has developed a fair and appropriate way of allocating resources to the nation's disabled elderly population, especially those people with dementia.

Objective The present study has investigated: (i) the relation of the Government-Certified Disability Index (GCDI) of the LTC insurance system to characteristics of people with dementia and their family caregivers; and (ii) whether the GCDI scores adequately reflect needs of people with DAT (dementia of Alzheimer's type) and VD (vascular-type dementia).

Methods Subjects were assessed on their visits to outpatient clinics for their Activities of Daily Living (ADL), behavioural disturbances, MMSE, GCDI, service utilization and caregiver burden. Correlation analyses were conducted to examine the relationships among these variables, which were subsequently compared between the DAT and VD patients.

Results and Conclusions The GCDI was found to be associated with patients' ADLs and MMSE scores, and not with behavioural disturbances or caregiver burden. Compared to VD patients, people with DAT tended to have more behavioural disturbances but better ADL functioning. As a result, DAT patients were classified as 'less disabled' on their GCDI than VD patients, even though their caregivers felt as much burden as the caregivers of VD patients. These results show that the GCDI probably underestimates the impact of behaviour problems. Suggestions are made for a more balanced assessment of demented patients that is more consistent with their needs. Copyright © 2003 John Wiley & Sons, Ltd.

KEY WORDS — caregiver; assessment; LTC insurance; Japan; dementia of Alzheimer's type; vascular dementia; resource allocation

INTRODUCTION

Following the lead of The Netherlands and Germany, Japan has launched a long-term care insurance system in a courageous attempt to deal with its growing number of impaired elderly in the world's fastest-graying population. Specifically, the goals of the Long-term Care (LTC) insurance system are: (1) to allocate limited resources to impaired elderly in a way that adequately reflects need, and (2) to reduce caregiver

burden (Ministry of Health and Welfare, 1996). Now, just two years after its inception, one may ask whether the new system has any flaws or loopholes that must be addressed and rectified. In particular, it seems reasonable to ask whether the programme has developed a fair and appropriate way of allocating limited resources to people with different diagnoses. An allocation based on need is especially critical for people with dementia, who require a great amount of assistance from family caregivers to be able to live in the community.

Fair allocation of this kind is no small task, judging from the efforts made to achieve this goal around the world. From an extensive review of the literature, Williams *et al.* (1997) found that the needs of demented elderly are often underestimated due to a lack of field-proven items to assess accurately their cognition and behavioural problems. Does this state of affairs

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hold true for the assessment of the demented elderly under the LTC insurance scheme in Japan? Such underestimation would be critical, given the large number of current and projected patients with dementia in Japan. In 2000, the prevalence of dementia was 7.2% (1,560,000 patients), and this amount is predicted to peak at around 10.5% (3 million patients) in the year 2035 (Arai and Ikegami, 1998). The need for a system that allocates scarce resources for care fairly to people with different disabilities is critical for Japan as well as other countries with growing elderly populations.

Japan's scheme to pay for institutional and home-based care covers not only those aged 65 or over who require it, but even middle-aged people over 40 years of age with 'age-related' diseases such as dementia. In other words, the system can be considered to be both far-sighted and far-reaching. The system is also easy to access. The family caregiver need only contact the local government, the deemed insurer, in order to apply for home care services including home help, nurse visits, day services, respite care and institutional care (nursing homes, etc.).

Services are allocated based on the Government-Certified Disability Index (GCDI) (*Yokaigodo*). To compute the GCDI, a care manager who is assigned to a particular case conducts an assessment of the client's disability, using an 85-item instrument developed by the Ministry of Health, Labor and Welfare (2002). These 85 items mainly deal with Activities of Daily Living (ADL), with less emphasis on the cognition and behavioural problems presented by the client. A government computer programme then uses an algorithm to calculate the client's GCDI score from the data gathered by the care manager. Following computation of this score, a so-called 'certification committee', consisting of visiting nurses, physicians and in some cases a psychiatrist, reviews the computer-calculated GCDI score. The committee can accept or change the score, taking into account a report submitted by the client's primary care physician. The final GCDI scores range from 0 to 6, and indicate the amount that can be spent on services for a particular patient with a given score (see Table 1). Once this review has been completed, a care management agency in the area steps in to provide the amount of services indicated by the GCDI score.

Has the above LTC assessment scheme in Japan met expectations to date? Some researchers claim that the GCDI in the LTC insurance system does not adequately take into account problems associated especially with dementia of the Alzheimer's type (DAT) (Campbell and Ikegami, 2000; Nandi, 2001). More-

Table 1. The Government-Certified Disability Index (GCDI) and maximum monthly coverage for services under the LTC insurance scheme

GCDI score	Severity of impairment	Maximum coverage of services/month
0	Frailty, slight impairment	62,400 yen (520 US dollars)
1	ADL difficulties	169,000 yen (1408 US dollars)
2	Moderate impairment	198,500 yen (1654 US dollars)
3	Severe impairment	272,700 yen (2272 US dollars)
4	Severe impairment with special needs	312,000 yen (2600 US dollars)
5	Bedridden with special needs	365,400 yen (3045 US dollars)

Exchange rate used: US dollar = 120 yen (May 2002).

Source: Ministry of Labor, Health and Welfare (2002).

over, from a grass-roots perspective, complaints of this nature to the MHLW website in 2001 outnumbered any other LTC insurance-related complaint from a rather broad spectrum of the Japanese population. More systematic investigations of the scoring system are clearly needed, particularly in determining the extent to which scores are associated with patient characteristics that reflect need and family caregiver burden.

This report has three objectives. Our first objective is to examine whether or not the GCDI is associated with indicators of the need for assistance among a community sample of demented patients and their caregivers. We consider specifically patient variables that reflect need, such as ADL, behavioural disturbances and cognitive impairment, as well as caregiver's burden. Secondly, we examine if the GCDI of the community-dwelling demented elderly is related to their service utilization under the LTC insurance system. Thirdly, we compare the community-dwelling elderly with DAT and vascular-type dementia (VD) in terms of ADL deficits, behavioural disturbances and caregiver burden. Finally, we consider whether the GCDI scores of DAT and VD patients were appropriately calculated in terms of their needs, i.e. their ADL and behavioural disturbances.

METHOD

Subjects

The subjects were 53 patients and their family caregivers, who were consecutively seen at the outpatient clinics for the demented elderly affiliated with Nagoya National Hospital and Kyowa Hospital

between August 2000 and January 2001. Both hospitals are located in Nagoya City, Aichi Prefecture, Japan. The catchment area of Nagoya National Hospital is the northern part of the city and Kyowa Hospital serves the southern part. Patients seen in the clinics were identified to participate in the study. Subsequently, we identified the principal family caregiver for each patient, all of whom resided with the patient. All of the patients and caregivers gave their informed consent in writing and were given a letter explaining the objectives of the present study. The diagnosis of DAT or VD was made by two consultant psychiatrists according to the diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) (American Psychiatric Association, 1994). The patients underwent routine laboratory examinations, electroencephalogram, chest X-ray, and CT and/or MRI examination. The Hachinski ischemic score (Hachinski *et al.*, 1974) was also obtained. Among the patients, 23 (43%) were diagnosed with DAT and 25 (47%) with VD. This proportion of DAT and VD cases is typical of Japan, where rates of VD are higher than among European and American populations. The remaining five out of 53 (9%) were designated mixed cases and are not included in these analyses.

Measures

In the present investigation, the demented elderly were assessed for problems in carrying out ADL, for the presence of behavioural disturbances, and for cognitive impairment. The patients were assessed on their visits to the outpatient clinics by the Barthel Index (BI), a widely used ten-item ADL scale (Davies, 1996). A cut-off point of nine on the BI represented the threshold between moderate and severe dependence (Davies, 1996).

The frequency of behavioural disturbances observed by primary caregivers was assessed using the Troublesome Behaviour Scale (TBS), which was designed to quantify the specific observable behaviour usually associated with dementia (Asada *et al.*, 1994). The 14 items of the TBS include wandering in and outside the house, dangerous activities involving gas or electricity, false accusations of stealing, hiding and/or losing things, disrupting family life, restless and/or noisy behaviour at night, physical and/or verbal abuse, crying and/or screaming, and quarrelling (Asada *et al.*, 1999).

Cognitive impairment of the elderly was assessed by the two consultant psychiatrists using the Mini-Mental State Examination (MMSE) (Folstein *et al.*,

1975). The psychiatrists also rated the severity of dementia by the Clinical Dementia Rating (CDR) (Hughes *et al.*, 1982). Those with a CDR score of 1 were designated mild cases, those with a score of 2 as moderate cases, and those with a score of three as severe cases.

At the time of their visits to the outpatient clinics with their patients, the caregivers of the 48 demented elderly were asked to complete questions about demographic characteristics of themselves and their patients and also about their subjective burden. Caregivers burden was assessed by the Japanese version of the Zarit Burden Interview (J-ZBI), a 22-item self-report inventory that examines the burden associated with functional behavioural impairments in the home care situation (Arai *et al.*, 1997). The ZBI is one of the most common scales used in North America and European countries for assessing the burden of caregiving (Zarit *et al.*, 1980; Zarit and Zarit, 1990). Caregivers were also asked to estimate the number of hours per day that they provided assistance to their relative.

Analyses

Our goal was to examine the factors associated with GCDI scores, and how well scores reflected patient needs and caregiver burden. We proceeded in three steps. First, we examined what patient and caregiver factors were associated with the GCDI. Spearman rank correlation tests were conducted to examine the relation of the GCDI to the Barthel Index (patients' ADL), TBS (behavioural disturbances), MMSE (cognitive impairment), the number of services used and caregiver burden. The second and third steps considered if type of dementia had an effect on patient needs in addition to severity, and if the GCDI showed a relation to both type of dementia and severity. In the second step, type of dementia and severity were tested for their relation to patient and caregiver variables. A two-way multivariate analysis of variance (MANOVA) was conducted, with severity and type of dementia (VD and DAT) as the independent variables and the Barthel Index, MMSE, TBS, hours of caregiving/day and the J-ZBI as the dependent variables. Two-way univariate analyses of variances (ANOVAs) were then used to test each dependent variable separately. In the third step, we considered the relation of severity and type of dementia to the GCDI. A two-way ANOVA was conducted with the GCDI as a dependent variable, and with type of dementia and severity of dementia as independent variables.

Characteristics of subjects

The average age of the DAT patients was 75.48 years old (SD=7.05), compared to 73.88 years old (SD=6.08) in VD patients. Five out of 23 DAT patients (22%) were male as were 17 out of 25 VD patients (68%). The average age of the DAT patient caregivers was 58.70 years old (SD=13.13), compared to 59.88 years old (SD=12.80) in VD caregivers. Eight out of 23 caregivers of DAT patients (35%) were male as were four out of 25 caregivers of VD patients (16%).

RESULTS

The results of Spearman's correlations of the GCDI with patient and family caregiver variables are presented in Table 2. As can be seen from Table 2, the GCDI score was negatively correlated with the Barthel Index (BI) score (Spearman's $\rho = -0.86$, $p < 0.01$) and MMSE score (Spearman's $\rho = -0.42$, $p < 0.01$), but was not significantly associated either with the TBS or the J-ZBI. Number of services, which is related to the GCDI (Spearman's $\rho = 0.57$, $p < 0.01$), was also related to the BI (Spearman's $\rho = -0.59$, $p < 0.01$), but not with the J-ZBI or TBS. Other findings in Table 2 showed that the score of J-ZBI was negatively correlated with the Barthel Index (Spearman's $\rho = -0.33$, $p < 0.05$) and was positively correlated with the score of TBS scale of the patients (Spearman's $\rho = 0.42$, $p < 0.05$). Thus, while caregivers caring for patients with more behaviour problems had higher burden, neither behaviour problems as measured by the TBS nor burden were reflected in the GCDI. The MANOVA revealed a significant main effect for the severity of dementia (Wilks' $\lambda = 0.48$, $F_{12,58} = 2.47$, $p < 0.01$), and for types of dementia (Wilks' $\lambda = 0.12$, $F_{12,58} = 4.30$, $p < 0.01$). The interaction was not significant (Wilks' $\lambda = 0.55$, $F_{24,58} = 0.82$).

The means and standard deviations of variables for patients with DAT and VD for each level of severity,

and the results of the ANOVAs for patient and caregiver variables are presented in Table 3. Turning first to the patient variables, the BI score was associated with severity of dementia, with ADL performance decreasing as severity increased. Also, patients with DAT had significantly higher BI scores (indicating better ADL performance) than those with VD ($p < 0.01$). The interaction of severity and type of dementia was not significant. As expected, the MMSE score was associated with the severity of dementia, but not by type of dementia. The TBS scale scores were significantly higher in DAT patients than in VD patients ($p < 0.01$), indicating they had greater behaviour problems. TBS scores, however, did not show a relation to severity of dementia. Turning to the caregiver-related variables, the J-ZBI scores and hours per day of caregiving were associated with severity but not type of dementia. Overall, these findings indicate that type of dementia had an impact on the Barthel Index (ADL) and TBS (behaviour problems), with DAT patients having more behaviour problems and less ADL impairment.

Since these patient characteristics were differentially affected by type of dementia, we were interested in whether people with DAT and VD received similar or different GCDI scores, once severity of dementia was taken into account. A two-way ANOVA was performed, with the GCDI as the dependent variable and severity and type of dementia as the independent variables. There was a significant main effect for severity of dementia ($F_{2,33} = 15.24$, $p < 0.01$), and also for type of dementia ($F_{1,33} = 6.80$, $p < 0.01$). The interaction was not significant ($F_{2,33} = 1.01$). As presented in Figure 1, the average GCDI score increased with the severity of dementia. Also, in mild and moderate cases, the GCDI score among the VD patients was higher than that of the DAT patients.

DISCUSSION

The development of publicly-financed long-term care and the pressures of expanding elderly populations

Table 2. Spearman's rank correlations among patients' Government-Certified Disability Index (GCDI), ADL, behavioural disturbances, cognitive impairment, number of services used and caregiver burden

	GCDI	Barthel Index	TBS	MMSE	Number of services used
Barthel Index	-0.86**	1	0.21	0.43**	-0.59**
TBS	-0.26	0.21	1	-0.04	-0.22
MMSE	-0.42**	0.43**	-0.04	1	-0.21
Number of services used	0.57**	-0.59**	-0.22	-0.21	1
J-ZBI	0.25	-0.33*	0.42**	-0.04	0.01

MMSE: Mini-Mental State Examination; TBS: Troublesome Behaviour Scale; J-ZBI: Japanese version of the Zarit Burden Interview. ** $p < 0.01$; * $p < 0.05$.

Table 3. Comparison of patient conditions and caregiver burden in terms of severity in DAT and VD groups using two-way ANOVAs

	Patients with DAT						Patients with VD						Type of dementia		Severity A x B	
	Mild (n = 8)		Moderate (n = 11)		Severe (n = 4)		Mild (n = 10)		Moderate (n = 11)		Severe (n = 4)		(A)		(B)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F _{1,42}	F _{2,42}	F _{1,42}	F _{2,42}
Patients	18.88	1.24	14.82	3.73	7.50	6.40	15.50	4.19	8.18	5.28	2.00	3.36	14.95***	25.15***	0.74	0.74
Barthel Index	20.00	3.74	11.45	6.13	3.75	3.77	16.20	7.64	13.00	6.52	1.00	2.00	0.73	17.78***	0.98	0.98
MMSE	13.00	10.47	11.00	6.67	23.25	20.12	9.40	9.40	5.82	7.52	10.50	9.32	5.30***	2.20	0.62	0.62
TBS	4.50	4.75	9.32	6.07	10.88	9.57	5.25	5.87	12.10	7.52	8.63	7.58	0.04	4.00***	0.43	0.43
Hours of caregiving/day	36.75	13.59	34.10	17.17	56.00	16.79	43.20	22.98	34.18	21.75	54.75	11.23	0.09	3.72***	0.18	0.18
J-ZBI																

MMSE: Mini-Mental State Examination; TBS: Troublesome Behaviour Scale; J-ZBI: Japanese version of the Zarit Burden Interview. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

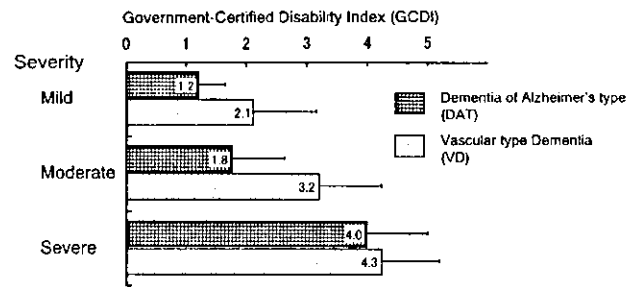


Figure 1. Government-Certified Disability Index (GCDI) and severity in DAT and VD patients

necessitate a fair and equitable system for allocating resources. The present study has investigated the approach developed in Japan as part of the new LTC insurance system. Specifically, the study examined: (i) the relation of the GCDI to characteristics of people with dementia and their family caregivers; and (ii) whether the GCDI scores appropriately reflect needs of DAT and VD patients.

The findings showed that the GCDI was associated with ADLs and cognitive impairment, but not with behaviour problems or caregiving burden. A system of assessment that emphasizes ADLs, such as used by the GCDI, would adequately reflect needs, if other problems such as caregiver burden and behaviour problems were strongly associated with it. In that case, a broad-based formula for determining need would not be necessary. But as shown in Table 2, ADLs as measured by the BI were not associated with behaviour problems, and had a small, significant correlation with caregiver burden. A similar pattern could be seen with MMSE scores, which were associated with the GCDI, but not with behaviour problems or caregiver burden. A system that stresses impairment (ADLs, cognition) for determining need will inevitably underestimate behaviour problems and caregiver burden.

The GCDI score authorizes the level of service use, and that was supported by the findings. People with higher GCDI scores did receive more services. As with the GCDI, however, service use was strongly associated with ADLs, and was not associated with patient's behaviour problems or caregiver burden. Under the current system, then, caregivers who are assisting patients who are more behaviourally disturbed, and who themselves experience more burden are not authorized for and do not receive additional services. The LTC insurance system provides an appropriate amount of services in relation to ADL disability, but not other dimensions of impairment that are central to dementia.

The limitations of the current system are further highlighted in the comparison of DAT and VD patients. Consistent with previous findings (Haley and Pardo, 1989; Annersted *et al.*, 2000; Groves *et al.*, 2000), when DAT and VD patients were compared, the former had significantly more behavioural disturbances and higher ADLs. However, there were no significant differences between the mean J-ZBI score of caregivers who looked after DAT patients and the score of those who cared for VD patients, indicating that DAT caregivers felt as much burden as VD caregivers. Vetter *et al.* (1999) noted that caregivers of VD patients in the mild/moderate stages experienced more burden than those with DAT patients, whereas the converse proved true in the more severe stages. In the present study, a similar trend to Vetter's was found, although differences were not significant regardless of the severity of dementia. One difference is that all caregivers in the present study lived with their patients, which was not the case in Vetter *et al.* (1999). The caregivers of DAT and VD patients might have felt a similar degree of burden because they shared similar living situations.

As shown in Figure 1, the GCDI closely takes into account the severity of dementia; the more severe the case is, the higher the GCDI score is. Moreover, our study clearly demonstrates that the GCDI score for community-dwelling elderly accurately reflects the severity of their dementia. This finding among community-dwelling elderly persons with dementia is consistent with what Ito *et al.* (2001) found from their study of institutionalised demented elderly.

The most striking finding in the present study, however, is that the GCDI score is very closely related to the *type* of dementia involved. The GCDI score among the DAT patients was lower than that of the VD patients, meaning that DAT patients were classified as 'less disabled' than VD patients. As discussed above, this finding was probably due to the fact that the GCDI only took into account ADLs but not the severity of patients' behavioural disturbances; indeed, the DAT patients in our study tended to have better ADLs than VD patients, and hence they were classified as 'less disabled'. Thus, the current assessment scheme using the GCDI, which overemphasizes the ADLs of such patients, tends to score DAT patients inappropriately lower.

Since the amount of services patients are allowed to use under the LTC insurance plan is determined solely by the GCDI score, it appears that people with DAT are allowed fewer services even when the severity of their dementia is the same as a VD patient. As shown in Table 3, caregivers of DAT patients experi-

ence much the same burden as VD patient caregivers. Nonetheless, DAT caregivers are not entitled to use as much of the services as VD patients, which suggests inequities in allocating limited resources among the community-dwelling demented elderly.

To remedy this situation, first and foremost, the government computer programme used to calculate the GCDI score at the first stage of assessment, should be revised; behavioural disturbances warrant a higher weighting because patients' behavioural disturbances are strongly related to caregiver burden. This is not inconsistent with the conclusions reached by Williams *et al.* (1997). Second, the so-called 'certification committees' and general practitioners should be better-equipped to provide not just confirmation but an overall more balanced assessment, based on their insights from long experience dealing with different types of dementia and the behavioural problems they present for both the system and the caregiver. Besides more education and information regarding dementia for general practitioners, the call now in Japan is for the inclusion of more professionals with genuine psychogeriatric expertise in the 'certification committee'.

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REFERENCES

- American Psychiatric Association. 1994. *Diagnostic and Statistical Manual of Mental Disorders, 4th edn-revised*. American Psychiatric Association: Washington, DC.
- Annersted L, Elmståhl S, Ingvad B, Samuelsson SM. 2000. Family caregiving in dementia: an analysis of the caregiver's burden and the 'breaking-point' when home care becomes inadequate. *Scand J Public Health* 28: 23-31.
- Arai Y, Kudo K, Hosokawa T, *et al.* 1997. Reliability and validity of the Japanese version of Zarit Caregiver Burden. *Psychiat Clin Neurosci* 51(5): 281-287.
- Arai Y, Ikegami N. 1998. How will Japan cope with the impending surge of dementia? In *Health Economics of Dementia*, Winblad AWB, Jonsson B, Karison G (eds). John Wiley & Sons: Chichester; 275-284.

- Arai Y, Washio M. 1999. Burden felt by family caring for the elderly members needing care in southern Japan. *Ageing Ment Health* 3: 158–164.
- Asada T, Yoshioka M, Morikawa S, et al. 1994. Development of a Troublesome Behaviour Scale (TBS) for the elderly patients with dementia. *Jpn J Public Health* 41: 518–527 (in Japanese).
- Asada T, Kinoshita T, Morikawa S, et al. 1999. A prospective 5-year follow-up study on the behavioural disturbances of community-dwelling elderly people with Alzheimer disease. *Alzheimer Dis Assoc Disord* 13(4): 202–208.
- Campbell JC, Ikegami N. 2000. Long-term care insurance comes to Japan: a major departure for Japan, this new program aims to be a comprehensive solution to the problem of caring for frail older people. *Health Aff* 19(3): 26–38.
- Davies P. 1996. Sociological approaches to health outcomes. In *Health Outcomes: Biological, Social, and Economic Perspectives*, Macbeth HM (ed.). Oxford University Press: Oxford; 94–139.
- Draper BM, Poulos CJ, Cole AM, et al. 1992. A comparison of caregivers for elderly stroke and dementia victims. *J Am Geriatrics Soc* 40: 896–901.
- Folstein MF, Folstein SE, McHugh PU. 1975. 'Mini-Mental State': a practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res* 12: 189–198.
- Groves WC, Brandt J, Steinberg M, et al. 2000. Vascular dementia and Alzheimer's disease: is there a difference? A comparison of symptoms by disease duration. *J Neuropsychiatry Clin Neurosci* 12(3): 305–351.
- Hachinski VC, Lassen NA, Marshall J. 1974. Multi-infarct dementia: a cause of mental deterioration in the elderly. *Lancet* 2: 207–209.
- Haley WE, Pardo KM. 1989. Relationship of severity of dementia to caregiving stressors. *Psychol Ageing* 4: 389–392.
- Hughes CP, Berg L, Danziger WL, et al. 1982. A new clinical scale for the staging of dementia. *Br J Psychiatry* 140: 566–572.
- Ito H, Tachimori H, Miyamoto Y, Morimura Y. 2001. Are the care levels of people with dementia correctly assessed for eligibility of the Japanese long-term care insurance? *Int J Geriatr Psychiatry* 16: 1078–1084.
- Ministry of Health and Welfare. 1996. *White Paper on Welfare (kousei hakusho)*. Gyousei: Tokyo (in Japanese).
- Ministry of Health, Labor and Welfare. 2002. *Long Term Care Insurance*. <http://www.mhlw.go.jp/topics/kaigo/index.html> (in Japanese).
- Nandi S. 2001. Quantifying dementia care in Japan: a discussion on the long-term care insurance. *Psychogeriatrics* 1: 100–107.
- Vetter PH, Krauss S, Steiner O, et al. 1999. Vascular dementia versus dementia of Alzheimer's type: do they have differential effects on caregivers' burden? *J Gerontol Soc Sciences* 54B(2): S93–S98.
- Williams J, Lyons B, Rowland D. 1997. Unmet long-term care needs of elderly people in the community: a review of the literature. *Home Health Care Services Quart* 16(1/2): 93–119.
- Zarit SH, Reever KE, Bach-Peterson J. 1980. Relatives of the impaired elderly: correlates of feelings of burden. *Gerontologist* 20: 649–655.
- Zarit SH, Zarit JM. 1990. *The Memory and Behavior Problems Checklist 1987R and the Burden Interview*. Pennsylvania State University Gerontology Center: University Park, PA.

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痴呆症学 (3)

—高齢社会と脳科学の進歩—

精神神経機能と ADL の障害

II. 障害度の評価法

介護者

Zarit 介護負担尺度日本語版 (J-ZBI) および
短縮版 (J-ZBI_8)

荒井由美子

介護者

Zarit 介護負担尺度日本語版 (J-ZBI) および
短縮版 (J-ZBI_8)The Japanese version of Zarit Burden Interview (J-ZBI)
and its short version (J-ZBI_8)

荒井由美子

Key words : 介護負担, 介護者, 痴呆介護, 在宅介護, 介護負担尺度

はじめに

要介護高齢者, 特に痴呆高齢者を介護する家族介護者の負担が注目されるようになったのは1980年代末以降である。この背景としては, 人口の高齢化と, それに伴う要介護高齢者, なかでも痴呆高齢者の増加があげられる。特に, 痴呆患者は, 中核症状である認知機能障害だけでなく随伴症状である問題行動 (behavioral and psychological symptoms of dementia: BPSD) を呈するケースが多いため, 身体障害をもつ要介護高齢者とは異なった介護が必要である。こうしたことから, 痴呆患者の在宅介護は, 多大な負担を生じ, 家族介護者は hidden patients (潜在的な患者) になり得ることが Fengler らにより指摘されてきた¹⁾。

我が国においても, 1980年代の後半に, 家族介護者の7割が自己犠牲感をもっていることが報告されている。その後, 1990年代になって介護者の負担に関する数多くの研究が発表された。しかし, これらの研究の中には, 介護負担を測定する際に定量的ではなく, 定性的に回答者に対し, 介護負担が‘あり’か, ‘なし’かを二者択一方式で選ばせるものも存在した。また, 負担

を定量的に評価する尺度を用いたとしても, その信頼性・妥当性が確認された尺度を用いた研究も少なかった。介護負担の研究にとって, 介護負担を科学的, 定量的に評価することが可能な尺度を用いることは重要である。しかもその尺度は, その信頼性, 妥当性が確認されており, 国際的にも通用するものが求められる。

本稿では, 介護負担研究において, 最も頻用されている Zarit 介護負担尺度 (ZBI), その日本語版 (J-ZBI), および J-ZBI の短縮版 (J-ZBI_8) を紹介したうえで, 介護負担研究全般について概説する。

1. 介護負担の定量的な評価: ZBI および J-ZBI

介護負担という概念を定量的に評価する指標を最初に開発したのは米国のペンシルバニア州立大学 Zarit 教授である。彼は, ‘親族を介護した結果, 介護者が情緒的, 身体的健康, 社会生活および経済状態に関して被った被害の程度を測定できる尺度’である Zarit 介護負担尺度 (Zarit Caregiver Burden Interview: ZBI) を作成した²⁾。ZBI は, 介護によってもたらされる身体的負担, 心理的負担, 経済的困難などを総括し,

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介護負担として測定することが可能な尺度である。本尺度は、当初、29項目から構成されていたが、22項目に改訂された³⁾。この22項目からなるZBIは、欧米で最も頻用されている介護負担尺度の一つであり、各国の言語に翻訳されている。

この尺度は、22項目の様々な場面における介護の負担に関しての質問から構成され、それぞれの質問項目に対しては、5段階の評価がなされる。全22項目のうち、最終項目である項目22は、‘介護の負担が全体としてどのくらいあるのか’を示す指標(a single global burden)であると定義されている³⁾。Whitlatchら⁴⁾、Hébertら⁵⁾は、探索的因子分析により、ZBIにはPersonal strainとRole strainの2因子があるとしている。なお、本尺度は、面接調査で用いることができるだけでなく、自記質問票の形式でも用いることも可能である。

Zaritらは、61-88点を最重度の介護負担、41-60点を重度の介護負担、21-40点を中等度の介護負担、21点未満を軽度の介護負担であると大まかに分類している。しかし、これらは厳密に定められたカットオフポイントではなく、合計得点を4分位に分類したものであり、対象者によっては必ずしも該当しない場合もある⁵⁾。

著者は、国際的に比較が可能な介護負担尺度の日本語版を作成することが有用であると考え、Zarit教授の許可を得て、Zarit介護負担尺度日本語版(J-ZBI)を作成し、信頼性と妥当性を確認した⁶⁾。表1に、全22項目の質問とその判定基準を示したが、原版と同じく満点は88点であり、介護負担が全くない場合は0点である。この介護負担尺度は、介護者の負担を客観的に把握する目的で、我が国の多くの大学、研究所などで用いられている。

2. Zarit介護負担尺度日本語版の短縮版(J-ZBI_8)

a. J-ZBI_8の信頼性・妥当性の確認

著者らは、実際の介護の現場で、より簡便に介護負担を測定できるようJ-ZBI短縮版(J-ZBI_8)を作成した。短縮版作成に当たっては、

在宅で要介護高齢者の介護に当たっている介護者に対し、介護負担(J-ZBI)に関する調査を行い、項目22を除いた21項目に対し、因子分析(最尤法、Varimax回転)を行い、短縮版の項目の選定を行った。その結果、Personal strain(介護を必要とする状況に対する否定的な感情の程度)、Role strain(介護によって社会生活に支障を来している程度)、それぞれ5項目、3項目からなる、J-ZBI短縮版(J-ZBI_8)が作成された。表1の◎を付した5項目がPersonal strainに該当する項目であり、△を付した3項目がRole strainに該当する項目である。J-ZBI_8、下位尺度Personal strain、Role strainそれぞれにおいて、高い内的整合性が確認され、更に、J-ZBI_8の併存的妥当性および構成概念妥当性についても確認された。したがって、J-ZBIの短縮版であるJ-ZBI_8の信頼性、妥当性は原版と同様高いものであり、十分に実用に耐え得るものと確認された⁷⁾。

b. J-ZBI_8の交差妥当性の確認

更に、交差妥当性(尺度作成時と異なる対象における妥当性の確認)の確認のため、別地域において介護負担調査を行い、内的整合性、因子的妥当性、併存的妥当性の検討を行った。その結果、J-ZBI_8と下位尺度であるPersonal strain、Role strainにおける高い内的整合性が確認された。因子的妥当性の検討には、確証的因子分析を行い、モデルの適合度は十分であった。また、併存的妥当性、構成概念妥当性も確認され、このことから、J-ZBI_8の交差妥当性が確認された⁸⁾。

J-ZBI_8は、わずか8項目の簡便な尺度であるが、因子構造が明確な2つの下位尺度をもち、J-ZBIと極めて高い相関が認められた。本尺度により、簡便に在宅介護者の介護負担を把握することが可能となる。このようにJ-ZBI_8は、在宅介護、臨床の現場、諸調査において、介護負担を客観的に測定するうえで極めて有用な尺度であり、幅広い利用が望まれる。

表1 Zarit介護負担尺度日本語版(J-ZBI)および短縮版(J-ZBI_8)(荒井らによる訳)⁶⁻⁸⁾

各質問について、あなたの気持ちに最も当てはまると思う番号を○で囲んで下さい		思わ ない	たま に思 う	時々 思 う	よく 思 う	いつも 思 う	
	1 介護を受けている方は、必要以上に世話を求めてくると感じますか	— 0	— 1	— 2	— 3	— 4	
	2 介護のために自分の時間が十分にとれないと感じますか	— 0	— 1	— 2	— 3	— 4	
	3 介護のほかに、家事や仕事などもこなしていかなければならず「ストレスだな」と感じることがありますか	— 0	— 1	— 2	— 3	— 4	
◎	4 介護を受けている方の行動に対し、困ってしまうと感じることがありますか	— 0	— 1	— 2	— 3	— 4	
◎	5 介護を受けている方のそばにいと腹が立つと感じますか	— 0	— 1	— 2	— 3	— 4	
△	6 介護があるので、家族や友人と付き合いづらくなっていると感じますか	— 0	— 1	— 2	— 3	— 4	
	7 介護を受けている方が将来どうなるのか不安になると感じますか	— 0	— 1	— 2	— 3	— 4	
	8 介護を受けている方は、あなたに頼っていると感じますか	— 0	— 1	— 2	— 3	— 4	
◎	9 介護を受けている方のそばにいと、気が休まらないと感じますか	— 0	— 1	— 2	— 3	— 4	
	10 介護のために、体調を崩したと感じることがありますか	— 0	— 1	— 2	— 3	— 4	
	11 介護があるので、自分のプライバシーを保つことができないと感じますか	— 0	— 1	— 2	— 3	— 4	
△	12 介護があるので、自分の社会参加の機会が減ったと感じることがありますか	— 0	— 1	— 2	— 3	— 4	
△	13 介護を受けている方が家にいるので、友達を自宅によびたくてもよべないと感じることがありますか	— 0	— 1	— 2	— 3	— 4	
	14 介護を受けている方は「あなただけが頼り」というふうに見えますか	— 0	— 1	— 2	— 3	— 4	
	15 いまの暮らしを考えれば、介護にかかる金銭的な余裕がないと感じることがありますか	— 0	— 1	— 2	— 3	— 4	
	16 介護にこれ以上の時間は割けないと感じることがありますか	— 0	— 1	— 2	— 3	— 4	
	17 介護が始まって以来、自分の思いどおりの生活ができなくなったと感じることがありますか	— 0	— 1	— 2	— 3	— 4	
◎	18 介護をだれかに任せてしまいたいと感じることがありますか	— 0	— 1	— 2	— 3	— 4	
◎	19 介護を受けている方に対して、どうしていいかわからないと感じることがありますか	— 0	— 1	— 2	— 3	— 4	
	20 自分は今以上にもっと頑張って介護するべきだと感じることがありますか	— 0	— 1	— 2	— 3	— 4	
	21 本当は自分をもっとうまく介護できるのになあと感じることがありますか	— 0	— 1	— 2	— 3	— 4	
		ない	全く負担では 思 う	多少負担に 思 う	世間並みの 負担だと思 う	かなり負担だ と思 う	非常に大きな 負担である
	22 全体を通してみると、介護をするということは、どれくらい自分の負担になっていると感じますか	— 0	— 1	— 2	— 3	— 4	

注：◎ J-ZBI_8 Personal strain, △ J-ZBI_8 Role strain

3. 介護負担に関してこれまでに行われた研究

a. 介護負担に関する横断研究

介護負担に関してこれまで行われた横断研究(cross-sectional studies)から得られた知見を以下に記す。なお、諸外国の介護負担研究では、‘介護者が要介護高齢者と同居しているか否か’についての報告・検討がなされていないものも存在する。これに対し、高齢者と子供との同居率が高い我が国では、同居の家族介護者を対象とした介護負担研究が大半を占めており、諸外国の研究結果との比較を行う際には、この点に留意することが必要である。

1) 要介護高齢者側の要因と介護負担との関連

要介護高齢者の日常生活動作能力(Activities of Daily Living: ADL)の自立の程度と、介護負担との関連については、有意な関連を認めた研究と認めなかった研究とがあり、一致した見解はみられていない。また要介護高齢者の痴呆の重症度、認知機能と介護負担についても、関連を認めないとする報告が多いが、必ずしも一致した結果は得られていない。これに対し、要介護高齢者の問題行動は、ほぼすべての先行研究において、介護負担との関連が強く認められており、著者らの行った研究でも同様の知見が得られた⁹⁾。

2) 介護者側の要因と介護負担との関連

一方、介護者に関する変数としては、介護者の性、年齢、続柄それぞれと介護負担との関連については一致した見解はみられていない。すなわち、‘介護者が高齢であるほど介護負担が高い’、あるいは‘女性の介護者の方が介護負担が高い’などの報告もあるが、一定の見解は得られていない。また、介護期間に関しては、これまでのところ、その期間の長さや介護負担との間に、明らかな関係は見いだされていない。これに対し、介護量の指標として広く用いられている介護時間は、介護負担と有意に関連することが知られている。ところで、要介護高齢者(痴呆高齢者)を介護する者にとっては、実際に

介護をする時間だけでなく、見守り(supervise)に時間をとられることが多い。これを踏まえて、著者らは、介護者に対して、‘要介護高齢者から目を離せない時間(あるいはその逆としての介護者が外出できる時間)’を尋ねるようにしている。その結果、介護者の外出時間と介護負担との間には有意な関連が認められた¹⁰⁾。

これらの結果から、介護負担軽減のためには、要介護高齢者の問題行動を軽減し、介護者が介護に要する時間を減らし自由になれる時間を確保することが必要であると考えられる。ちなみに問題行動の軽減に当たっては、要介護高齢者自身への介入策としての薬物療法あるいは非薬物療法だけでなく、介護者への教育をはじめとした介護者に対する介入が有効であるといわれている¹¹⁾。また、家族介護者が介護に要する時間を減らす手段としては、介護を代わってくれる者あるいは手伝ってくれる者がいること(informal instrumental supportがあること)¹²⁾、あるいは介護者が利用したいときに利用できるような(利便性の高い)レスパイトケアなどのサービスを整備していくことが必要であろう¹⁰⁾。

b. 介護負担に関する縦断研究

次に、介護負担の経時的変化に関してこれまでに行われた縦断研究(longitudinal studies)の知見を以下に記す。介護負担の経時的変化を検討するには以下の2つのアプローチが考えられる。一つめのアプローチは、追跡終了時(T2)での介護負担得点と追跡開始時(T1: ベースライン時)との得点を比較するものである。Haleyらによると、介護負担の経時的変化には、細分すると3つの型が考えられるという¹³⁾。第1は、介護をしていくうちに、要介護者(介護される側)の心身の状態が悪化するため、介護者の介護負担が高くなるとする説である(Wear-and-tear model)。第2は、介護者が介護に慣れていくため、介護負担は軽くなるとする説である(Adaptation model)。第3は、個人(介護者)に備わっているコーピングの能力は一定しているため、介護負担は常に変わらないとする説である(Trait model)。これまでに行われた研究では、上記3つのそれぞれの説を支持するような報告

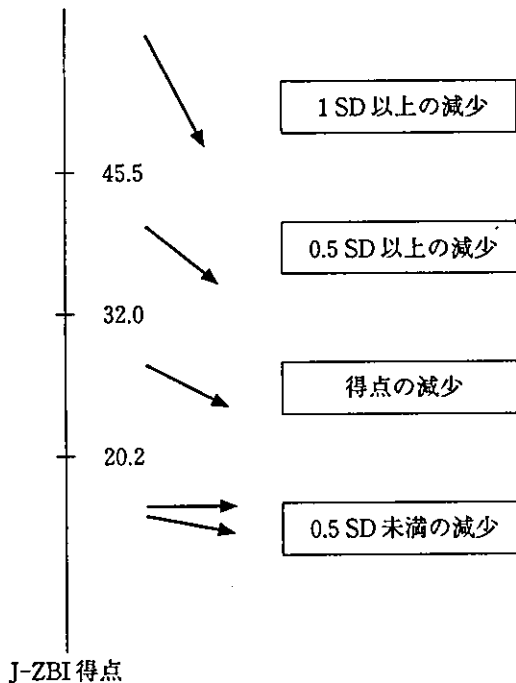


図1 Successful group の定義

(Arai, et al: Aging Ment Health 6(1): 39-46, 2002. より著者改変)

がなされている。

これに対する第二のアプローチとして、Aneshensel¹⁴⁾、Whitlatchら⁴⁾は介護負担得点の単純な算術的比較ではなく、ベースライン時(T1)での介護負担得点が高い者と低い者とに分類し、個々の介護者の介護負担得点がどのように変化したかを‘質的に(qualitatively)’検討する必要があると提唱した。著者らは、この概念を導入し、要介護高齢者の介護者を1年間追跡し、ベースライン時(T1)の介護負担得点が高い者については、‘追跡終了時(T2)に得点が1SD(標準偏差)以上低下した者’を successful group と見なし、ベースライン時(T1)の介護負担得点が高い者については、‘追跡終了時(T2)に介護負担得点が0.5SD以上上昇しなかった者’を successful group と見なし、介護者を successful group と unsuccessful group とに分類した(図1参照)。著者らが介護保険制度導入前に行ったこの研究では、他の要因をすべて統計学的に補正したうえで、介護者が配偶者でない場合には、そうでない場合に比較して unsuccess-

ful group に属するリスクが有意に高く、また痴呆高齢者を介護している者は、そうでない者に比較して unsuccessful group に属するリスクが有意に高かった¹⁵⁾。

ところで、我が国においては、2000年に介護保険制度が導入されたが、介護保険制度導入前から要介護高齢者の介護を続けている介護者の介護負担が、制度導入前後において、どのように変化するかを検討すべく、某自治体において縦断研究を行ったところ、悪化してはいないことが示された¹⁶⁾。

4. 介護負担研究の意義および今後の展望

介護負担研究を行うことの意義の一つは、介護負担の増悪が、要介護高齢者に対する虐待のリスクファクターであるだけでなく¹⁷⁾、介護者自身の心身の健康を損ねる可能性があるからである。Schulzらの前向き研究(4年間)によれば、介護者が高齢の場合、介護負担がある者の死亡のリスクは、介護を行っていない高齢者の1.63倍であった¹⁸⁾。しかし、介護負担がない介護者に関しては、そのような高い死亡リスクはみられなかった。このほかに介護者の血圧¹⁹⁾、免疫機能²⁰⁾に注目した研究も行われている。更に、介護者の介護負担増悪は要介護高齢者の施設入所のリスクファクターであり、介護負担の軽減が施設入所を遅延させ得ることが明らかになっている²¹⁾。このように、在宅介護を円滑に継続するために、介護負担の程度を客観的に把握し、その軽減策を講ずることは、極めて重要である。

これまでに、高齢のアルツハイマー型痴呆患者の介護者の負担に関しては、横断研究、縦断研究、介入研究それぞれにおいて知見が蓄積しつつあるが、前頭側頭葉性痴呆(FTLD)をはじめとしたいわゆる非アルツハイマー型変性痴呆患者の介護者の負担に関しては、いまだ研究は発展途上である。また、高齢の痴呆患者の介護者に関する研究に比較して、若年発症の痴呆患者の介護者に関しては、十分な研究が行われているとは言い難く、今後、こうした分野での研究の発展が望まれる。

■ 文 献

- 1) Fengler A, Goodrich N: Wives of elderly disabled men: The hidden patients. *Gerontologist* 19: 175-183, 1979.
- 2) Zarit SH, et al: Relatives of the impaired elderly: Correlates of feelings of burden. *Gerontologist* 20: 649-655, 1980.
- 3) Zarit SH, Zarit JM: The Memory and Behaviour Problems Checklist 1987R and the Burden Interview, Pennsylvania State University Gerontology Center, University Park PA, 1990.
- 4) Whitlatch CJ, et al: Efficacy of interventions with caregivers: A reanalysis. *Gerontologist* 31(1): 9-14, 1991.
- 5) Hébert R, et al: Reliability, validity and reference values of the Zarit Burden Interview for assessing informal caregivers of community-dwelling older persons with dementia. *Can J Aging* 19(4): 494-507, 2000.
- 6) Arai Y, et al: Reliability and validity of the Japanese version of the Zarit Caregiver Burden Interview. *Psychiatry Clin Neurosci* 51: 281-287, 1997.
- 7) 荒井由美子ほか: Zarit 介護負担尺度日本語版の短縮版(J-ZBI_8)の作成: その信頼性と妥当性に関する検討. *日老医誌* 40(5): 471-477, 2003.
- 8) 熊本圭吾, 荒井由美子: 日本語版 Zarit 介護負担尺度短縮版(J-ZBI_8)の交差妥当性の検討. *日老医誌* 41(2): 2004. (印刷中)
- 9) Arai Y, et al: Burden felt by family caring for the elderly members needing care in southern Japan. *Aging Ment Health* 3: 158-164, 1999.
- 10) Arai Y, et al: Factors related to feelings of burden among caregivers looking after impaired elderly in Japan under the Long-Term Care Insurance system. *Psychiatry Clin Neurosci* 58(4): 2004. (in press)
- 11) Hébert R, et al: Efficacy of a psychoeducative group program for caregivers of demented persons living at home: a randomized controlled trial. *J Gerontol B-Psychol* 58B: S58-S67, 2003.
- 12) Miller B, et al: Social support and caregiver distress: A replication analysis. *J Gerontol B-Psychol* 56B: S249-S256, 2001.
- 13) Haley WE, Pardo KM: Relationship of severity of dementia to caregiving stressors. *Psychol Aging* 4: 389-392, 1989.
- 14) Aneshensel CS: The natural history of depressive symptoms: Implications for psychiatric epidemiology. In: *Research in Community and Mental Health*(ed by Greenley JR), p45-75, JAI Press, Greenwich CT, 1985.
- 15) Arai Y, et al: Patterns of outcome of caregiving for the impaired elderly: a longitudinal study in rural Japan. *Aging Ment Health* 6(1): 39-46, 2002.
- 16) Arai Y, et al: New Japanese Long-Term insurance system slashes carer time but problems remain. *Int J Geriatr Psychiatry* 17(5): 489-491, 2002.
- 17) Schiamberg L, Gans D: Elder abuse by adult children: an applied ecological framework for understanding contextual risk factors and the intergenerational character of quality of life. *Int J Aging Hum Dev* 50(4): 329-359, 2000.
- 18) Schulz R, Beach SR: Caregiving as a risk factor for mortality. *JAMA* 282(23): 2215-2219, 1999.
- 19) Shaw WS, et al: Emotional expressiveness, hostility and blood pressure in a longitudinal cohort of Alzheimer caregivers. *J Psychosom Res* 54(4): 293-302, 2003.
- 20) Kiecolt-Glaser JK, et al: Chronic stress and age-related increases in the proinflammatory cytokine IL-6. *Proc Natl Acad Sci USA* 100(15): 9090-9095, 2003.
- 21) Mittelman M, et al: A Family intervention to delay nursing home placement of patients with Alzheimer disease: A randomized controlled trial. *JAMA* 276: 1725-1731, 1996.