

Table 1 Characteristics of participants by age group and driving status

	Older (65+ years)		Younger (40–64 years)	
	Drivers (n = 192)	Non-drivers (n = 258)	Drivers (n = 451)	Non-drivers (n = 109)
Men, n (%)	136 (70.8)	89 (34.5)	251 (55.7)	29 (26.6)
Age, mean (SD)	72.9 (5.3)	75.5 (6.1)	48.0 (6.5)	52.9 (8.0)
Education, n (%) ^a				
<10 years	49 (25.9)	78 (30.4)	12 (2.7)	8 (7.4)
10–<13 years	74 (39.2)	134 (52.1)	148 (32.9)	55 (50.9)
13+ years	66 (34.9)	45 (17.5)	290 (64.4)	45 (41.7)
Annual household income (thousands of Yen), n (%) ^b				
<<4000	75 (42.4)	103 (43.3)	47 (11.0)	33 (31.7)
4000–<8000	69 (39.0)	103 (43.3)	185 (43.4)	46 (42.2)
8000+	33 (18.6)	32 (13.5)	194 (45.5)	25 (24.0)
Employed, n (%)	53 (27.6)	25 (9.7)	355 (78.7)	54 (49.5)
Living arrangement, n (%) ^c				
Alone	10 (5.4)	27 (11.1)	7 (1.6)	6 (5.7)
Couple	95 (50.8)	84 (34.4)	56 (12.8)	34 (32.4)
Two or more generations in household	82 (43.9)	133 (54.5)	374 (85.6)	65 (61.9)
Place of residence, n (%) ^d				
Urban	58 (30.7)	84 (34.6)	249 (55.6)	51 (49.5)
Suburban	56 (29.6)	71 (29.2)	103 (23.0)	27 (26.2)
Rural	75 (39.7)	88 (36.2)	96 (21.4)	25 (24.3)
Frequently driving, n (%)	145 (75.5)	na	372 (82.5)	na

Missing data: six data points (a), 65 data points (b), 37 data points (c), and 27 data points (d).

useful as an ID card' (27.2%). The reason 'Loss of a motivating factor in my life' was significantly more common among the older drivers than among the younger drivers, even after adjusting for potential confounders. Moreover, compared with the younger drivers, the older drivers appeared to be concerned about 'Loss of something I enjoy' ($p = 0.05$) and 'Loss of a hobby' ($p = 0.08$) after driving cessation, although these reasons were not significant.

Discussion

The present study clearly demonstrated the disparities in perceptions about driving in a sample of the Japanese general public.

Perceptions about driving varied according to the respondent's driving status. Irrespective of age group, drivers tended to believe that driving was a deserved right, whereas non-drivers were less likely to think so. Further research is needed regarding why the difference in perceptions existed. These different perceptions are nonetheless thought to be a cause of possible conflicts among family members or stakeholders; those drivers who perceive driving as a right may firmly refuse to give up driving or even rigidly adhere to continuing to drive. These results also indicate that drivers and non-drivers may have a different understanding of 'driving'. Therefore, it is necessary for the general population, irrespective of driving status, to promote a more precise recognition of current driving license regula-

Table 2 Perceptions of driving among the general public

	Older (65+ years)		Younger (40–64 years)		<i>p</i> value ^b (adjusted for potential confounding variables)	
	Drivers (n = 192)	Non-drivers (n = 257) ^a	Drivers (n = 449) ^a	Non-drivers (n = 109)	Older vs. younger	Drivers vs. non-drivers
'Driving is a "right" which we all deserve'					0.7462	0.0009
Agree/Agree somewhat, n (%)	147 (76.6)	146 (56.8)	311 (69.3)	72 (66.1)		
Disagree somewhat/Disagree, n (%)	45 (23.4)	111 (43.2)	138 (30.7)	37 (33.9)		

^aOne missing data point for the older non-drivers and two missing data points for the younger non-drivers.

^bCalculated by multiple logistic regression model including age group/driving status, gender, place of residence, education, annual household income, living arrangement, and employment status.

Table 3 Possible reasons for reluctance to stop driving among frequent drivers (multiple answers)

Reason	Older drivers (65+ years, <i>n</i> = 144) ^a	Younger drivers (40–64 years, <i>n</i> = 370) ^a	Older vs. younger drivers	
	<i>n</i> (%)	<i>n</i> (%)	Crude OR	Adjusted OR ^b
I am not reluctant to stop driving	22 (15.3)	51 (13.8)	1.13	1.64
It would be difficult for me to go out	90 (62.5)	248 (67.0)	0.82	0.88
It would be difficult for my family members to go out	59 (41.0)	162 (43.8)	0.89	0.87
Loss of something I enjoy	56 (38.9)	94 (25.4)	1.87*	1.81
Loss of independent living	39 (27.1)	81 (21.9)	1.33	1.10
A driver's license is useful as an ID card.	38 (26.4)	102 (27.6)	0.94	1.16
Loss of a motivating factor in my life	28 (19.4)	30 (8.1)	2.74*	4.93*
Loss of a way to relax	21 (14.6)	43 (11.6)	1.30	1.85
Loss of a hobby	20 (13.9)	32 (8.7)	1.70	2.44
Loss of a sense of self	20 (13.9)	43 (11.6)	1.23	0.91
I want to keep my driver's license	18 (12.5)	38 (10.3)	1.25	0.77
Loss of my dignity	15 (10.4)	29 (7.8)	1.37	1.31
Loss of something I commit to regularly	14 (9.7)	22 (6.0)	1.70	2.02
Loss of an opportunity to be alone	8 (5.6)	22 (6.0)	0.93	2.06
I don't know how to return my license	0 (0.0)	0 (0.0)	—	—

^aOne missing data point for the older drivers and two missing data points for the younger drivers.

^bOdds ratio (OR) was adjusted for gender, place of residence, education, annual household income, living arrangement, and employment status by multiple logistic regression model.

**p* < 0.05.

tions to close the perception gap and for the sake of public safety.

Our study also showed that among the frequent drivers in both older and younger groups, most of the reasons for reluctance to stop driving were related to the possible loss of personal mobility (shown in Table 3). Our finding partly supports Freund's view (Freund and Szinovacz, 2002) in which decisions to stop driving were associated not only with competence but also with the availability of alternate transportation opportunities. In addition, a previous study regarding family caregivers of dementia patients by Mizuno *et al.* (2008) showed that family caregivers cited alternative transportation, and in particular the availability of family caregivers or other family members who could drive instead of the patient, as essential to facilitate the cessation of driving. It has also been reported that the availability of transportation services was a key factor in allowing older people to keep attending social activities and maintain autonomy (Roper and Mulley, 1996; Dickerson *et al.*, 2007; O'Neill, 2007). It is clear that alternate transportation is needed to facilitate the smooth transition to another form of transportation after driving retirement and prevent older people from experiencing restricted mobility. Although availability of a mass transit system varies between rural and urban areas in Japan, a bus or community bus (one that circles around the area) has been developed as a practical form of transportation to enhance the mobility of the residents and is expected to support

those who have stopped driving as well as their family members.

We found a significant difference between the older and younger age groups with respect to the reasons for reluctance to stop driving. The older drivers were more likely to value the qualitative aspects of driving, for example, driving as 'a motivating factor in my life', 'something I enjoy', and consider a 'hobby'. It appears that driving is regarded not only as a mode of transportation but also as a meaningful activity for older drivers. This might be related to the findings of another study in which 93% of drivers diagnosed with dementia (*n* = 43) thought that driving was important to their quality of life (Adler and Kuskowski, 2003). Both practical and qualitative aspects of driving can be important factors in maintaining independence among older people.

These noticeable reasons for reluctance to stop driving may be related to the negative consequences of driving cessation among older people or people with dementia cited in previous reports: increased depressive symptoms (Marottoli *et al.*, 1997; Fonda *et al.*, 2001; Ragland *et al.*, 2005), decreased out-of-home activity levels (Marottoli *et al.*, 2000), difficulties in accessing social and recreational services (Taylor and Tripodes, 2001), and increased risk for entry into a nursing home (Freeman *et al.*, 2006). We therefore suggest that more attention be devoted to not only the problem of decreased mobility but also alternatives to the qualitative aspects of driving. One possible

alternative would be to increase opportunities for participating in leisure, physical, and social activities and social services, which could help older people find something else to 'motivate them in their lives', 'enjoy', and have as a 'hobby' after driving retirement. Moreover, to seek appropriate alternatives for individuals, family members, and stakeholders should communicate with the older drivers early in the process of driving cessation to try to better understand what 'driving activity' means for them.

The limitations of this study should be noted. Although our study sample was selected from a research panel based on national statistics using a quota sampling method, a certain amount of selection bias was unavoidable. In addition, we categorized the respondents into two groups of driving status: drivers and non-drivers. However, we did not know if the non-drivers group included former drivers who had returned a driver's license and stopped driving. A self-administered questionnaire, as used in this study, can represent another information bias. Perceptions about driving were not sufficiently explored by the closed-ended format in the questionnaire; thus, the results should be carefully interpreted. We did not take into account in the analyses whether the licensed drivers had other drivers to provide transportation. Instead, we used living arrangement as a confounding factor related to the availability of alternate drivers that could be controlled in the analyses.

Despite these limitations, our findings provide useful insights into the possible family or social barriers to driving cessation in the case of drivers with dementia. As observed in the present study, the disparities in perceptions about driving may cause conflicts among stakeholders with respect to when dementia patients should have their licenses revoked. It is thus important to facilitate general public involvement in considering the public health issue of driving and dementia, closing the perception gap and developing strategies to better address the difficulties related to driving cessation as a whole society. Moreover, in addition to practicable transportation alternatives, the qualitative aspects of driving should also be paid more attention when preparing alternatives. In this way, the goal of more effectively meeting the needs of retiring drivers while also allowing them to maintain autonomy can be more easily achieved.

Conflict of interest

None known.

Key points

- The drivers among the general public that participated in this study tended to highly agree that 'driving is a "right" which we all deserve', compared with the non-drivers.
- The most common reason given for reluctance to stop driving among frequent drivers was the loss of personal mobility; further, older drivers were more likely than younger drivers to value the qualitative aspects of driving.
- Disparities in the general public's perceptions about driving may present possible family or social barriers to driving cessation in the case of drivers with dementia.
- It is suggested that not only mobility but also the qualitative aspects of driving be paid more attention when developing alternatives to driving.

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REVIEW ARTICLE

Exploring strategies to alleviate caregiver burden: Effects of the National Long-Term Care insurance scheme in Japan

Yumiko ARAI¹ and Steven H. ZARIT²

¹Department of Gerontological Policy, National Institute for Longevity Sciences (NILS), National Center for Geriatrics and Gerontology (NCGG), Aichi, Japan and ²Department of Human Development and Family Studies, Penn State University, University Park, Pennsylvania, USA

Correspondence: Dr Yumiko Arai MD, PhD, Departmental Head, Department of Gerontological Policy, National Institute for Longevity Sciences (NILS), National Center for Geriatrics and Gerontology (NCGG), 35 Gengo, Morioka-cho, Obu-shi, Aichi 474-8511, Japan. Email: yarai903@ncgg.go.jp

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INTRODUCTION

Worldwide, the number of older people with disabilities is increasing; correspondingly, there have been marked increases in the number of family members providing assistance to these individuals. Care demands can become stressful and exhausting, especially in cases of dementia and other degenerative conditions, and, as a result, family caregivers may experience significant mental health problems, as well as a deterioration of their own health. Thus, 'alleviation' of caregiver burden has become a primary public health goal in many countries.

In the present article, we explore initiatives to 'prevent' the burden of caregiving among those who look after older disabled family members. Japan and

Abstract

The ever-increasing population of older people with disabilities, including dementia, has been accompanied by a corresponding growth in the number of family caregivers, who are themselves at risk of developing mental and physical health problems. As a result, the need for practical and effective approaches for alleviating caregiver burden has become a major public health concern. One approach involves the development of public policy initiatives to allow the caregiver burden to be borne partly by society as a whole, rather than falling solely on individuals. In 2000, Japan introduced a National Long-Term Care (LTC) insurance scheme that requires adults over the age of 40 years to pay compulsory monthly premiums, with one aim of the program being to reduce caregiver burden. The present paper reviews the effects of this scheme on caregivers' and the general public's perception of caregiver burden and assesses what other measures are needed to further reduce and/or prevent burden. Drawing on recent studies, four questions are addressed: (i) have caregivers' attitudes towards caregiving changed since the implementation of the scheme; (ii) do services provided under the scheme alleviate caregiver burden; (iii) what are the general public's attitudes to and understanding of family caregiving; and (iv) what is the general public's level of understanding of dementia? Results from recent studies suggest that the LTC insurance scheme in Japan appears to be an effective measure for alleviating the burden of caregiving among current family caregivers, but larger studies are needed to determine overall effectiveness.

its long-term care system will be used as an example of one approach to reducing burden.

A review of the literature suggests that there are three common approaches that attempt to alleviate or reduce the burden of caregiving among those looking after older family members. The first approach is to treat the symptoms and problems of patients (care recipients) that are troublesome for caregivers. An example would be to use medication to reduce the occurrence of behavioral and psychological symptoms of dementia (BPSD), which, of course, is a major risk factor for caregiver burden. By targeting these problems in the patient, treatment should also reduce the burden on the caregiver.

The second approach is to intervene with family caregivers in a clinical or community setting to provide resources that may alleviate the impact of BPSD and other stressors. Examples of this approach would be providing respite care or counseling programs for caregivers. Some intervention studies, which have applied the first two approaches, have proven effective for certain study populations. Notable examples include Mittelman's work on a counseling intervention¹⁻³ and the studies of Zarit *et al.* on the impact of adult day care on caregiver burden.⁴⁻⁶

The third approach is at the societal level. In this approach new public policies would be established, or current ones modified, so that a portion of caregiving burden is borne by society as a whole. In contrast to intervening with caregivers and care recipients on an individual level, this approach makes information and resources more readily available for the whole population, as well as for targeted groups of vulnerable care recipients and their family caregivers. This may remove the isolation that caregivers feel and the stigma associated with using services. This population-wide approach is exemplified by Japan's National Long-Term Care (LTC) insurance scheme.

Japan has the world's fastest aging population. It also has a relatively high (but rapidly decreasing) proportion of family members coresiding with older parents. Thus, Japan's experience in implementing a national LTC policy may provide useful insights into how to cope with increasing demands for family caregiving in other aging societies.

STUDIES OF THE EFFECTS OF THE JAPANESE LTC POLICY ON CAREGIVING

To explore the impact of the LTC policy on family caregivers and the wider population, the results of four studies conducted by one of the authors (YA) and her colleagues are described in this paper. The goals of these studies were fourfold: (i) to ascertain whether caregivers' attitudes towards family caregiving had changed from those held before the implementation of LTC insurance; (ii) to investigate whether the use of services provided under the LTC scheme alleviate caregiver burden; (iii) to explore the attitudes of the general public towards and their understanding of family caregiving; and (iv) to determine the extent of the general public's knowledge of dementia. Prior to the discussion of the details of each study, the

current situation in Japan, including the LTC insurance scheme, is briefly described.

The LTC insurance scheme in Japan

Japan is the fastest graying society in the world. By 2020, one-quarter of the population will be over 65 years of age.⁷

Traditionally, older Japanese people lived with their children, particularly the eldest son and his wife. Caregiving emerged naturally under this arrangement. This arrangement was an integral part of the Confucian principles that were used to order families and society. With modernization, these traditions are changing rapidly. Over the past 60 years, the percentage of older people residing with their children has been decreasing constantly in Japan, as well as in other countries.⁸ Rates of coresidence in Japan started at a much higher level than in Western countries, and are still much higher, but the relative drop for Japan has been substantial, from 80% in 1952 to 43% at present. In summary, the traditional normative pattern of care in the same household is no longer available for over half of Japan's older residents. The new residential patterns reflect the emergence of new norms and values that are eroding the traditional responsibility that daughters-in-law had for their husbands' parents. With women increasingly employed outside the home, they are less likely to take on the obligation to be the main care provider for their in-laws, although they still may want to help their own parents. In addition, some older people may prefer maintaining their independence, rather than moving in with their children. Thus, the change in residential patterns, combined with other social changes and a rapidly growing older population, complicates the situation for caregiving.

The LTC insurance program was developed explicitly to address the changes in the age of the population and in family structure. The LTC scheme covers home-based and institutional care for those aged 65 years or older who require it. It also provides for people over 40 years of age who have 'age-related' diseases, such as dementia. Municipal governments are the insurers and the level of services is determined by the clients' severity of disability by using an index called the Government-Certified Disability Index (GCDI); under the LTC insurance program, care services are allocated based on this GCDI.⁹ One of the most important features of this scheme is that the

extent of informal care available to clients is not taken into account when eligibility is determined. For Japan, this is an incredibly radical departure from the traditional belief that families are the prime resource for long-term care.¹⁰

The LTC insurance scheme is financed by insurance premiums and tax revenue. Half the funding comes from premiums paid by people over 40 years of age. The other half of the funding comes from taxes.

We now turn to the four studies that address the effects of the LTC insurance scheme on family caregivers and the broader population.

Attitudes towards family caregiving among caregivers

The objective of the first study was to ascertain whether caregivers' attitudes towards family caregiving had changed from those before the implementation of the LTC insurance scheme.¹¹ Specifically, family caregivers who looked after disabled elderly served by a private agency in Osaka prefecture were asked on two occasions about who should care for disabled elders, once before the LTC insurance scheme was implemented (in 2000) and then after the scheme was in place (in 2001). The choices for responses were family only, family and society, mainly society, and society only. The responses showed greater endorsement of the responsibility of society for the care of older people in 2001 than in 2000. The proportion of those who answered 'mainly society' increased from 12.4% to 22.8%, whereas those responding 'society only' increased from 3.7% to 6.2%. These changes were statistically significant and meaningful in a society with strong cultural traditions of filial piety.

These results suggest that in a short period of time the LTC insurance scheme had demonstrably changed the attitudes of caregivers. More caregivers came to believe that society must be involved in the care of older people after the implementation of the LTC insurance scheme. There was a shift from the traditional way of thinking that the care of disabled older people falls to the family to the acceptance that society must help in the care of disabled older people in Japan.

This is one of the most meaningful changes initiated by the LTC insurance scheme. The lesson here is that many people may oppose change, fearing what it

may mean, but come to accept a new program when it proves useful.

Effectiveness of service use on reducing caregiver burden

Because relatively few observational studies had been conducted on the impact of home care services on burden or other aspects of the caregiver's experience, the second study investigated whether the use of services provided under the LTC scheme alleviated caregiver burden.¹²

The study tested three hypotheses:

1. That the severity of impairment and the dementia among the disabled elderly increases the feelings of burden among family caregivers and that support from family members decreases burden.
2. That the amount of services used by older people and their caregivers is affected by the severity of dementia and deficiencies in activities of daily living (ADL) among the disabled elderly and the amount of support from family members.
3. Controlling for severity, that the use of care services under the LTC insurance scheme serves to reduce the feelings of burden among family caregivers.

The study used data obtained from community-dwelling disabled elderly and their principal family caregivers. A structural equation model was used to test the hypotheses. The model included the following variables: age of the disabled elderly; the severity of the ADL deficiency and behavioral disturbances; the use of formal (public) care services; support from family members; and feelings of burden among family caregivers. After adjusting for the severity of impairment, it was found that greater service utilization under the LTC insurance scheme was associated with less caregiver burden (Fig. 1).¹²

These findings suggested that care services provided under the LTC insurance scheme had been successfully reducing burden among family caregivers. This study was one of the first to show that the use of services can reduce caregiver burden in a non-experimental setting,¹² that is, in a real community setting. More studies of this type are needed to expand our understanding of how services provided under the LTC insurance scheme may be helping family caregivers.

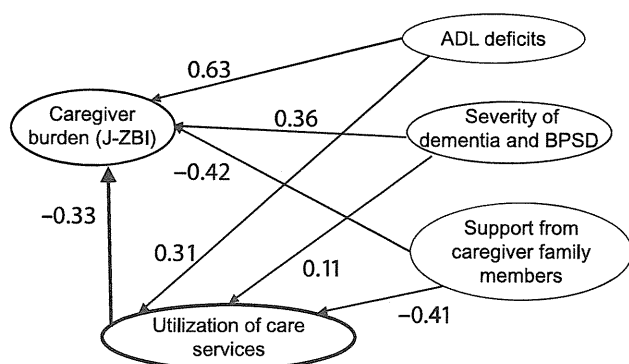


Figure 1 Structural model of the caregiver burden for family caregivers. Controlling for severity, the use of care services under the National Long-Term Care (LTC) insurance scheme serves to reduce the feelings of burden among family caregivers ($\chi^2 = 34.46$; d.f. = 26; $P = 0.12$; adjusted goodness of fit index (AGFI) = 0.85; comparative fit index (CFI) = 0.92; root mean square error of approximation (RMSEA) = 0.06). J-ZBI, Japanese version of the Zarit Burden Interview; ADL, activities of daily living; BPSD, behavioral and psychological symptoms of dementia.

Attitudes towards family caregiving among the general public

The third and the fourth studies were targeted at the general public and these studies were conducted with a view that an understanding of the general public's perception of caregiving is indispensable if we are to reduce 'caregiver burden' at the societal level.

The goal of the third study was to explore how the general public in Japan feels about caring for older people at home.¹³ Participants in the study were asked to report to what extent they agree with the following statement: 'Caring for older people at home can be a greater burden on family caregivers than at care facilities.' It was revealed that 85% of the Japanese general public believes that caring for older people at home is a great burden on family caregivers. This indicates a high level of concern and although we do not have data on similar concerns prior to the implementation of the LTC insurance scheme, it would seem that the LTC insurance scheme has yet to allay apprehensions about caring for older family members among the general public in Japan.

One possible explanation is that this 'expected burden' would be a lack of familiarity with the LTC insurance scheme among the general public. Therefore, we asked whether respondents knew how to use the services provided under the LTC insurance scheme. More than 60% of the general public did not know how to use the program and another 17% were

not sure if they knew how to use the program.¹³ Moreover, the proportion of people who did not know how to use the program was higher among those younger than 40 years of age. People under 40 years of age may not know much about how to use the LTC insurance scheme because they do not pay the compulsory monthly insurance premium. Of course, they are also less likely to be assisting a parent than are middle-aged adults. Nonetheless, increased understanding of the program in this age group could be useful. Family caregiving can befall anyone; most individuals are exposed to this risk or possibility of becoming 'a family caregiver', and some people under 40 years of age do take on this role. Thus, a lack of knowledge about the services provided under the LTC insurance scheme needs to be improved and apprehensions regarding caregiving among the general public need to be allayed, particularly in younger generations. This lack of knowledge may increase the difficulties these people may encounter if they become caregivers or it dissuade them from taking on the role of caregiver in the first place. Lack of knowledge could also undermine support among the general public of the LTC program.

Knowledge of dementia among the general public

The objective of the fourth study was to determine the extent of the general public's knowledge of dementia in Japan.¹⁴ We focused on dementia because of the number of people affected, particularly at advanced ages, and the considerable impact that dementia has on the family. As with knowledge about the LTC insurance scheme, knowledge about dementia represents an essential component for recognizing and supporting older people with this problem and their caregivers.

A 'dementia knowledge' survey was conducted targeted at the general public across the country, aged 20 years or older. A self-administered questionnaire was used to assess the level of understanding of dementia among the general public. Specifically, the survey comprised true-false assessments for 11 statements concerning dementia that addressed the categories 'general aspects', 'symptoms', and 'biomedical aspects including cause, treatment, and prognosis'.

The following two points became clear from the results. First, people understood the general aspects

Some types of dementia are caused by cerebrovascular diseases.

Some types of dementia are treatable.

Some types of dementia are hereditary.

Dementia shortens life expectancy after onset.

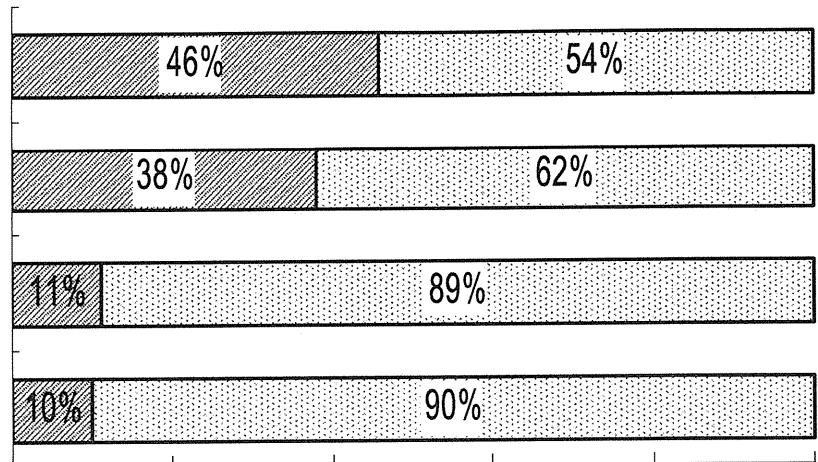


Figure 2 Knowledge of the 'biomedical aspects of dementia' in the general public aged 20 years or older ($n = 2115$). (■), correct answers; (▨), incorrect answers. The causes, treatment and prognosis of dementia were not well understood.

of dementia (e.g. the role of aging as well as symptoms of dementia). Second, the proportion of participants who showed proper understanding of items regarding the biomedical aspects of dementia was remarkably low; less than half the respondents gave correct answers in this area of questioning. For example, two of the items concerning heredity (cause) and life expectancy (prognosis) were answered correctly by only 10% and 11% of the sample, respectively. In addition, only 38% responded with the correct assessment of the statement regarding treatment for dementia ('some types of dementia are treatable'; Fig. 2). Overall, the causes, treatment and prognosis of dementia were not well understood among the general public, although the people generally knew about the role of age and types of symptoms manifested in dementia.¹⁴

This lack of understanding of dementia may prevent people from preparing for possible social and financial challenges if they become caregivers looking after a disabled family member. Indeed, family caregiving can befall anyone: becoming a family caregiver is a possibility for most individuals. Similarly, developing dementia can befall anyone.

To explore these findings further, we developed the following hypothesis: people who have more knowledge about dementia will be more likely to have done some advanced care planning for themselves. We examined the association between one's degree of knowledge of dementia and the proportion of those who have made decisions regarding care preferences

(i.e. advance care planning). For this study, we used a representative sample of 2000 people.¹⁵ We found that less than 60% of participants had decided about their care preferences on their own if extra assistance was required, regardless of their level of understanding about dementia (Fig. 3). However, using a Cochran–Armitage test for trends, we found that those with a better understanding of dementia were more likely to have already decided their own care preferences, should they need help in the future. In addition, this relationship was significant even after controlling for age and gender (Fig. 3).¹⁵

This result indicates that those who have sufficient knowledge of dementia are more likely to decide their own care preferences. This should allow them and their family caregivers to be 'more ready' for any social and medical challenges resulting from dementia. Thus, dissemination of knowledge of dementia among the general public is important because it may lead to a reduction in, or even a prevention of, caregiver burden by allowing them to seek early diagnosis and the provision of proper care in a timely manner.

CONCLUSIONS

The overall conclusions from these studies are as follows. First, preliminary studies suggest that Japan's National LTC insurance scheme appears an effective measure for alleviating the burden of care among family caregivers. The LTC insurance scheme has involved the general public (those over 40 years of

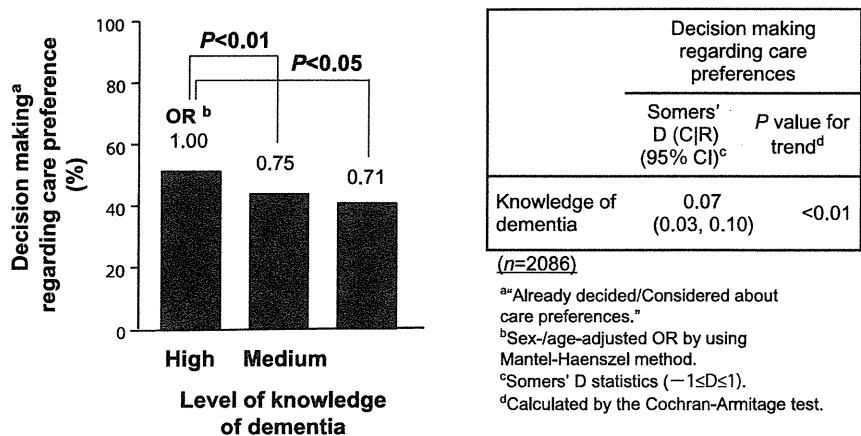


Figure 3 Association between advanced care planning and knowledge of dementia. Sixty percent of participants had decided on their own care preference if extra assistance was required, regardless of their level of understanding about dementia. OR, odds ratio; CI, confidence interval; CIR, row variable x (knowledge of dementia) is regarded as an independent variable, whereas the column variable y (decision making regarding care preferences) is regarded as a dependent variable.

age) by sharing the burden of caregiving through the compulsory payment of a monthly premium.

Second, the implication for other countries is that a system of burden sharing at the societal level may have a positive effect on reducing, and possibly preventing, the burden of care of ‘present day’ caregivers. More importantly, such a system can get the general public accustomed to the idea of sharing the burden of caregiving before any individual actually needs assistance, although that has not happened as much as it could have in Japan. Successful long-term care programs in the Scandinavian countries are built on long-standing cultural patterns of shared responsibility (see Sundström *et al.*¹⁶), but in countries such as Japan, where the LTC insurance scheme reflects changes in values, it may be important to combine policy initiatives with public education. Such an approach can be a useful strategy for preventing burden because people are then more prepared to become a family caregiver. In addition, it may encourage people to take on care responsibilities without feeling that they will be overwhelmed by having to do all the caring themselves.

Third, there are differences in the degree of apprehension felt about caregiving among different age groups. This appears to be based on the age for starting to pay the premium for the LTC insurance scheme. Thus, dissemination of information should be tailored to target different age groups in different ways.

Fourth, policy makers should recognize that the LTC insurance scheme contains effective measures for reducing or even preventing caregiver burden at a societal level rather than regarding it as only contain-

ing measures for reducing caregiver burden. Such recognition could be used as part of a universal primary prevention approach to provide education about how the LTC insurance scheme can help people meet caregiving responsibilities, if and when they have to assume such a role.

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アルツハイマー病の正しい理解



熊本大学医学部神経精神科

もくじ

はじめに

- | | |
|---------------------|----|
| 1. アルツハイマー病とは | 1 |
| 2. アルツハイマー病の原因 | 2 |
| 3. アルツハイマー病の頻度 | 4 |
| 4. アルツハイマー病の危険因子 | 4 |
| 5. アルツハイマー病の症状 | 6 |
| 6. アルツハイマー病の診断と検査所見 | 15 |
| 7. アルツハイマー病の治療とケア | 21 |
| 8. アルツハイマー病の経過 | 27 |
| 9. 実際の患者さんの例 | 29 |

おわりに

コラム

- | | |
|------------------|----|
| (1) 遺伝について | 5 |
| (2) 廃用症候群 | 10 |
| (3) せん妄 | 14 |
| (4) いろいろな認知症 | 20 |
| (5) 軽度認知障害 (MCI) | 28 |

はじめに

現在、日本では200万人以上の認知症の患者さんがいるといわれていますが、その半数近くがアルツハイマー病であると考えられています。ドイツの精神科医であったアルツハイマー先生がこの病気を発見してから約100年になりますが、これまでほとんど有効な治療が存在しませんでした。しかし、近年、記憶障害などの認知機能障害に対して効果が証明された薬が使えるようになってきましたし、精神症状や行動の障害に関しても個々の症状に対して、有効な治療やケアがみつかってきています。これらの治療やケアは出来るだけ早い段階から行う事が望ましく、早期発見と正しい診断がますます重要になっています。

われわれの立場は、正しく病気を理解し、現時点で最善の治療法やケアの方法を模索・導入し、患者さんや家族、介護者のみなさんの生活の質の向上を支援することです。本冊子を、このような目的のために役立てていただければ幸いです。

平成22年早春

1. アルツハイマー病とは

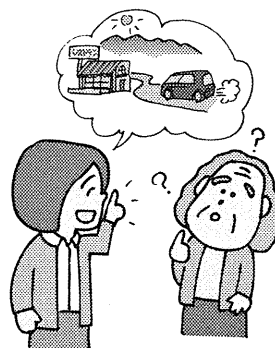
アルツハイマー病は、脳卒中などとともに認知症の原因となる代表的な病気です。多くは物忘れや時間の感覚がわからなくなるといった症状で病気が始まり、徐々に判断力や理解力が低下し、生活に支障をきたすようになります。通常は65歳以降の老年期に起こりますが、65歳未満の初老期に発症する若年性アルツハイマー病もあります。

アルツハイマー病の最大の特徴は物忘れ（記憶障害）です。日常の出来事の細部を覚えていなかったり、人の名前がとっさに思い出せないような物忘れは正常な老化現象でもみられますが、アルツハイマー病でみられる物忘れは、

- 最近の生活上の体験そのものを忘れる
- 物忘れへの自覚が乏しい

という特徴がみられます。例えば、週末にドライブに出かけてレストランで食事をしたとします。翌週、そのレストランの名前をなかなか思い出せなくても問題ありませんが、レストランで食事したこと自体を忘れていれば要注意です。進行したアルツハイマー病であれば、ドライブに出かけたこと自体も忘れてしまいます。一方で、かなり病気が進行するまでは、昔の思い

出や過去にあった社会的出来事の記憶は保たれます。また、アルツハイマー病の患者さんでは、しばしば物忘れの自覚がないことがあります。患者さんに病気の自覚が乏しいと、病院受診や介護保険サービスの利用に拒否的になることがあります。



2. アルツハイマー病の原因

アルツハイマー病は、脳の神経細胞に異常なタンパク（アミロイドβタンパク）がたまり、徐々に神経細胞が壊れていく病気です。この神経細胞の破壊は“海馬（かいば）”という脳のなかでも新しい出来事の記憶に関わる場所から起こります。アルツハイマー病が物忘れで発症することが多いのは、このためです。時間経過とともに海馬以外の他の脳領域にも神経細胞の破壊がひろがると、物忘れ以外の症状もみられるようになります。ただし、これらの変化はゆっくりとした速さでしか起こらず、一カ月程度ではまず変化には気づかれません。

3. アルツハイマー病の頻度

老年期に起こる認知症では、70～75%をアルツハイマー病と血管性認知症が占めるとされています。従来、日本では血管性認知症の方が多いとされてきましたが、最近の調査では、両者はほぼ同じ頻度か、アルツハイマー病の方が多いという報告が増えてきています。また、地域の高齢者を対象とした調査でもアルツハイマー病の患者さんの頻度が増えてきていると報告されています。これらの報告からアルツハイマー病の患者さんは近年増加傾向にあることがわかります。この背景には、高齢化の進展だけでなく、生活習慣の変化などの環境的な要因があるのではないかと考えられています。

4. アルツハイマー病の危険因子

危険因子とは、病気になる確率を上げる要因のことです。いくつかの要因がアルツハイマー病の危険因子として知られています。

1) 加齢

年代別にアルツハイマー病の患者さんの割合をみますと、65～70歳では1%であるのに対し、85歳を越えると15%以

上であり、加齢とともに病気を有する人の割合が増えることが示されています。加齢はアルツハイマー病における最も明らかな危険因子とされています。

2) 女性

男性との寿命の違いを考慮したうえでも、あらゆる年齢層において女性のほうがアルツハイマー病になる確率が高いといわれています。

3) 糖尿病

従来、糖尿病は認知症のなかでも血管性認知症の危険因子と考えられてきましたが、糖尿病の患者さんではアルツハイマー病の発症リスクが約2倍になるとされています。

4) その他

頭の外傷やうつ病の既往、教育歴の低さがアルツハイマー病の危険因子であるとの報告がみられますが、まだはっきりとはわかっていません。糖尿病と同じく血管性認知症の危険因子である高血圧や高脂血症、喫煙についてもアルツハイマー病との関連が指摘されていますが、一定の見解は得られていません。これらがアルツハイマー病の危険因子であるか否かについては、さらなる検討が必要です。

コラム 遺伝について

アルツハイマー病の多くは明らかな遺伝性を示しませんが、明らかな遺伝性を示す患者さんも一定の割合で存在します。ある遺伝子を有することによりアルツハイマー病を必ず発症することがあり、このようなタイプは家族性アルツハイマー病と呼ばれ、原因となる遺伝子が1/2の確率で子孫に受け継がれていきます。この遺伝子を持っていると、ほぼ100%の確率で40～50代の早期にアルツハイマー病を発症しますが、極めてまれな疾患です。

また、“アポリポ蛋白^{イプシロン}E-ε4”という遺伝子を持つ人では、アルツハイマー病を発症する確率が高くなるということが知られています。アポリポ蛋白E遺伝子には、ε2、ε3、ε4の3種類があり、人によって持っているアポリポ蛋白E遺伝子の種類が異なります（血液型のA型、B型、O型のようなものと考えて下さい）。このうち、ε4を持つ人では持たない人よりも、アルツハイマー病になりやすいことが知られています。ただし、ε4を持つ人が必ずアルツハイマー病を発症するわけではなく、アルツハイマー病になりやすい体質を受け継ぐと考えればよいでしょう。この遺伝子が関わって引き起こされるアルツハイマー病は、通常は65歳以後の老年期に発症します。

5. アルツハイマー病の症状

アルツハイマー病の症状は大きく“認知機能障害”（記憶障害、構成障害など）と“精神症状”（妄想、興奮、徘徊など）にわけられます。認知機能障害は病気の経過を通して常に存在し、徐々に進行していく症状であり、すべての患者さんに起こります。一方、精神症状は必ずしもすべての患者さんにみられるわけではなく、多くは一過性に起こります。また、アルツハイマー病は脳の病気ですが、歩行障害や尿失禁、パーキンソン症状（手が震えたり、身体の動きが鈍くなる）などの神経症状は病気がかなり進行してからでないともみられません。ここでは、認知機能障害と精神症状について詳しく説明していきます。

1) 認知機能障害

a. 記憶障害

新しい事柄が覚えられず、約束や用件を忘れてたり、一度話した内容を忘れて何度も同じ話を繰り返すといった症状がみられます。定期的に薬を飲んでいる患者さんであれば、薬の飲み忘れがみられることがあります。女性の患者さんでは、鍋を火にかけたことを忘れて焦がしてしまう“鍋焦がし”がよくみられます。通常は病気の進行に伴い、体験を記憶にとどめておくことができる時間が短くなり、進行期には数分前