

ORIGINAL ARTICLE

Provision of a family-care seminar for 64 demented individuals using Takeuchi's theory : A family-led dementia-alleviation program

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ABSTRACT

In recent years, programs aimed at relieving dementia symptoms have been implemented nationwide. In these programs, dementia patients are cared for by their family members using Takeuchi's theory. The authors have provided education for these caregivers. In the present study, we held a 6-month family-care seminar for 64 dementia patients and their family caregivers at 3 sites.

Of the 141 dementia symptoms exhibited by these patients before the seminar, 92 (65.2%) were resolved and 15 (10.6%) almost completely disappeared after the seminar (total: 75.8%). According to a questionnaire survey involving their family caregivers, 57.8% of them felt that patients showed very or slightly favorable changes in their dementia symptoms; this percentage was lower than that of actually resolved symptoms (75.8%). Thus, the disappearance of dementia symptoms did not lead to family caregivers' positive evaluation of symptom changes. Our findings suggest that dementia symptoms can be resolved or relieved depending on care, and that there is a need to adopt continued approaches in a manner so that the anxiety of family caregivers will be reduced, and they will recognize changes in their patients' symptoms.

<Key-words>

Takeuchi's theory, family care, dementia

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I . Background

In Japan, elderly people comprise 24.1% of the total population, and the country's population aging rate is the highest in the world. As elderly dementia patients numbered approximately 4.62 million in 2012, the Ministry of Health, Labour and Welfare(2015) established a 5-year dementia countermeasures promotion plan (Orange Plan). However, as the population is aging, it is expected that the number of dementia patients will rise to approximately 7 million in 2025. Against this background, the ministry established the "Comprehensive Dementia Countermeasures Promotion Plan: Development of an Ideal Community for Demented Elderly People" [New Orange Plan]. In this plan, it is recommended that such individuals continue to live in the community (their hometown) as usual. On the other hand, according to a survey involving 1,130 family members of dementia patients conducted by the Japan National Health Insurance Clinics and Hospitals Association(2011), only 8.1% of the subjects had been taught skills or knowledge regarding nursing care for dementia. Nose, Noto, Senba, et al.(2013) was investigated of 162 set dementia elderly and primary caregiver. The primary caregiver's mental health of "stereotypy and aggressiveness type" was worst in five types. Thus, although it has been proposed that elderly dementia patients live in the community, effective approaches (e.g., family education) to achieve this goal have yet to be adopted.

Takeuchi(2008) published a book entitled: "Let's Treat Dementia by Family", using a dementia care theory that he formulated based on numerous studies regarding dementia.

Takeuchi's theory is based on the basic idea that: 1) dementia is caused by cognitive impairment, and 2) similar to other diseases occurring in the senile period, dementia is caused by various factors present in the body, rather than by brain abnormalities. This theory focuses on "exercise" and "nutrition", both of which have been suggested by many studies as factors related to dementia due to cognitive decline, as well as "fluids" and "regular defecation". The factor "fluids" influences consciousness levels that are the basis of cognition, and the factor "regular defecation" has been conventionally and empirically focused on. According to the theory, care is provided based on these 4 factors in order to restore cognition and resolve cognitive symptoms. In addition, by taking a volume of 1,500 ml/day of fluids and 1,500 kcal/day, and by walking for 30 minutes or a distance of 2 km, constipation and cognitive symptoms can be resolved or alleviated.

On the basis of this theory, in recent years, we have provided family education at the request of municipalities in order to relieve the dementia symptoms of target individuals. Family-led dementia-alleviation programs have been increasingly conducted nationwide in a manner so that dementia patients can continue to live in their hometown (Kobayashi city, 2014; Kawasaki city, 2015).

In the present study, we provided an education seminar for 64 dementia patients and their family caregivers, and investigated changes in these caregivers' views regarding care for dementia patients in order to obtain an insight into improving countermeasures

against the disease.

II. Curriculum of our family-care seminars

Our family-care seminars, aimed at relieving/resolving dementia patients' symptoms and restoring their cognition, are held by municipalities or social welfare corporations in cooperation with their family caregivers and care service providers, based on Takeuchi's theory and using the above-mentioned publication.

- i. Each seminar comprises 6 sessions, which are held for patients' family caregivers and care service providers at 1-month intervals.
- ii. In each session, participants are required to submit one week's worth of data on the care that they have provided for dementia patients during the previous month.
- iii. On the basis of the submitted homework, instructors provide guidance on nursing care.
- iv. Detailed information on dementia patients' symptoms, including changes in their original symptoms and the onset of new symptoms, is also reported, based on which related advice is provided.
- v. Changes in dementia symptoms are evaluated using the following 5-point grading scale: "disappeared", "almost completely disappeared", "moderately relieved", "partially relieved", and "no changes".

Family caregivers provide nursing care under the instructions of seminar organizers (Table 1).

<Table 1.> Curriculum of our family-care seminar for demented individuals

Seminar period	Six months (seminar sessions are held at 1-month intervals)
Participants	Caregivers of dementia patients (open recruitment)
Methods	<ol style="list-style-type: none"> ① Participants learn about the basic theory of nursing care for dementia patients using a textbook entitled: "Let's Treat Dementia as a Family", written by Takahito Takeuchi. ② Participants (family caregivers and care service providers) implement this theory (including the submission of assigned homework in every session). ③ In every session, participants review the care that they have provided during the previous month, and receive related guidance.
Assignments	<ol style="list-style-type: none"> ① Making one week's worth of records in a report form (e.g., fluid intake, activity levels, bowel movements, and the frequency of going out [Table 1-2]) ② Taking pictures of the 3 meals on any day ③ Reporting ideas that participants have advanced regarding nursing care, and difficulties that they have encountered ④ Evaluation of dementia symptoms

III. Objectives

This 6-month family-care seminar aimed to: 1) resolve the dementia patients' dementia symptoms, 2) clarify the effectiveness of family-led dementia care based on Takeuchi's theory by evaluating changes in these symptoms that took place over the seminar, and 3) improve such seminars based on care-related changes shown by family caregivers.

IV. Methods

Data were collected from the 64 dementia patients and their family caregivers from 3 seminar locations (location A: n=40, location B: 19, and location C: 5).

Study 1. Assessment of dementia patients' symptoms

Investigated items: 1) subject attributes, 2) disease, 3) medication, 4) services required by the patient, 5) original dementia symptoms, 6) dementia symptoms after the seminar, 7) basic information on nursing care (e.g., fluid intake, dietary intake, activity levels, bowel movements), and so on.

Methods: 6-month intervention study

Using the report form submitted in each session, interviews were held with the subjects in order to assess changes in dementia patients' dementia symptoms using the above-mentioned 5-point grading scale. Guidance was provided to those who did not report any symptom relief or disappearance.

Period: Between March 2012 and March 2014 (the seminar period differed among the seminar locations)

Study 2. Survey of family caregivers

Investigated items: 1) the attributes of family caregivers (sex, age, the presence/absence of an occupation, whether or not they lived with their patients, relationship between them and their patients), 2) changes in dementia symptoms that took place over the seminar, 3) confidence in caregiving, 4) caregivers' feelings, and 5) changes in the ways in which they cared for dementia patients (assessed using a 5-point grading scale [1: very unfavorable, 5: very favorable])

Methods: Collective questionnaire survey after the seminar

Period: Between March 2012 and March 2014 (the seminar period differed among the seminar locations)

Statistical analysis: After simple tabulation, cross-tabulation (chi-square test and residual analysis) was performed to investigate the relationships among the investigated items, and the Wilcoxon signed-rank test was performed to compare these items before and after the seminar. The level of significance was set at 0.05. For all analyses, IBM

SPSS Statistics 20 was used.

V. Ethical Considerations

Information about the participants, their families, and the care service providers was strictly protected by the seminar organizers (municipalities and social welfare corporations). We orally explained the study to the participants and seminar organizers in order to obtain their consent regarding the survey and disclosure of such information.

VI. Results

Study 1

To clarify the usefulness of the seminar employing Takeuchi's theory, we investigated changes in dementia patients' dementia symptoms and related nursing care (before and after the seminar).

1. Patient attributes

A total of 64 demented individuals (20 males and 44 females) attended the seminar. The mean age of these subjects was 82.3 ± 6.95 (range: 62 to 96 years). Subjects requiring nursing care and those requiring support numbered 51 and 6, respectively. Five subjects lived independently or had not applied for such care/support.

2. Effects of the seminar on resolving or relieving dementia symptoms

Before the seminar, a total of 141 dementia symptoms were exhibited by the 64 subjects. Of these symptoms, 92 (65.2%) disappeared, 15 (10.6%) were almost completely resolved, 15 (10.6%) were moderately relieved, 4 (2.8%) were partially relieved, and 15 (10.5%) did not change. Thus, the percentage of symptoms that disappeared or were almost completely resolved was 75.8% (Table 2-1). Table 2-2 shows some of the dementia symptoms exhibited by the subjects.

<Table 2-1> Effects of the seminar on resolving or relieving dementia symptoms

Symptoms	Disappearance	Relief			No change
		Almost completely	Moderately	Partially	
141	92	15	15	4	15
Percentage (%)	65.2%	10.6%	10.6%	2.8%	10.6%

<Table 2-2> Dementia symptoms exhibited by dementia patients

No	Original symptoms	Disappearance	Relief			No change
			Almost completely	Modestly	Partially	
71	Wandering outside the house at night	1				1
72	Urinating in places other than the bathroom at night	1				
73	Lack of facial expression, apathy, and sleeping all day	1				
74	Feeling anxious late at night and claiming repeatedly that the person has become crazy	1				
75	Missing day services	1				
76	Inability to cook					
77	The person was usually either very active or very inactive.	1				
78	The person made phone calls repeatedly for the same reason, but became reassured when an explanation was given.			1		
79	Inability to go shopping and use an ATM.	1				
80	Excessive drinking	1				

3. Dementia symptoms

An average of 2.2 dementia symptoms were exhibited by each subject. The highest number of symptoms shown by a single subject was 7: 1) getting up late at night to change clothes, 2) mistaking a mirror for a bathroom entrance, 3) becoming naked and filling the bathtub with hot water, 4) going out of the house and becoming lost in the neighborhood, 5) chattering teeth, 6) becoming violent toward others, and 7) getting oneself locked out. Among those who lived independently or had not applied for care/support, an average of 3.6 dementia symptoms were exhibited. The levels of care need and numbers of dementia symptoms are shown in Table 2-3.

<Table 2-3> Levels of care need and numbers of dementia symptoms

	Number of subjects	Number of symptoms
Living independently or not having applied for care/support	5	18
Requiring support	6	6
Requiring care level 1	17	45
Requiring care level 2	11	25
Requiring care level 3	15	29
Requiring care level 4	6	13
Requiring care level 5	2	3
Missing values	2	2
	64	141

4. Types of dementia and other diseases

The subjects had been diagnosed with the following types of dementia: Alzheimer's disease (n=41 [64.0%]), no diagnosis given (n=13 [20.3%]), cerebrovascular dementia (n=6 [9.4%]), alcohol-induced dementia (n=2 [3.1%]), mixed dementia (n=1 [1.6%]), and dementia with Lewy bodies (n=1 [1.6%]). The other diseases diagnosed were: hypertension (n=24), diabetes (n=13), stroke (n=6), heart diseases (n=4), Parkinson's disease (n=3), and mental illnesses (n=2) [multiple answers allowed].

5. Comparisons of nursing care and services before and after the seminar

The daily volume of fluid intake, weekly frequency of exercise, and time for exercise per week, which were all parts of the basic care, significantly increased after the seminar. The services required by the patients did not significantly change (Wilcoxon's signed-rank test, $p < 0.05$) (Table 2-4).

Study 2

Using a questionnaire, we investigated how the 64 caregivers viewed the 6-month seminar, and care-related changes shown by them.

1. Attributes of caregivers (patients' families and care service providers)

Of the 64 caregivers, 62 (42 family caregivers and 20 care service providers) completed the questionnaire. The mean age of these subjects was 56.55 ± 12.39 years. The median age of the family caregivers was 58 years (range: 35-81 years), and that of the service providers was 51 years (range: 24-62 years).

Concerning the sex of the 61 questionnaire responders, they comprised 7 male (11.5%)

and 35 female (57.4%) family caregivers, as well as 5 male (8.2%) and 14 female (23.0%) care service providers.

<Table 2-4> Comparisons of nursing care and services before and after the seminar

	N	Average	SD	Minimum value	Maximum value	% 50 (Median)	Z	Asymptotic p-value (two-sided)
Daily fluid intake (mL) before the seminar	63	1197.6	482.18	350.0	2900.0	1110.0		
Daily fluid intake (mL) after the seminar	60	1611.3	499.04	662.0	3361.0	1555.5	-6.261 ^b	.000
Weekly frequency of bowel movements before the seminar	60	4.3	2.81	0.0	15.0	4.0		
Weekly frequency of bowel movements after the seminar	59	4.5	2.29	1.0	7.0	5.0	-.459 ^b	.646
Weekly frequency of exercise before the seminar	63	4.5	5.31	0.0	30.0	4.0		
Weekly frequency of exercise after the seminar	58	16.2	62.43	0.0	480.0	7.0	-3.773 ^b	.000
Time for exercise per week (minutes) before the seminar	58	162.7	234.46	0.0	1142.0	100.0		
Time for exercise per week (minutes) after the seminar	51	311.7	406.68	0.0	2520.0	180.0	-2.803 ^b	.005
Weekly frequency of visiting daycare facilities before the seminar	64	1.6	1.91	0.0	7.0	1.0		
Weekly frequency of visiting daycare facilities after the seminar	64	1.7	2.08	0.0	7.0	1.0	-.495 ^b	.620
Weekly frequency of visiting temporary care facilities (including small-sized centers) before the seminar	64	0.4	1.26	0.0	5.0	0.0		
Weekly frequency of visiting temporary care facilities (including small-sized centers) after the seminar	64	0.5	1.76	0.0	7.0	0.0	-1.166 ^b	.244
Weekly frequency of receiving home-visit care before the seminar	64	0.2	0.95	0.0	7.0	0.0		
Weekly frequency of receiving home-visit care after the seminar	64	0.4	1.40	0.0	7.0	0.0	-1.890 ^b	.059
Weekly frequency of receiving home-visit nursing care or rehabilitation before the seminar	64	0.1	0.28	0.0	2.0	0.0		
Weekly frequency of receiving home-visit nursing care or rehabilitation after the seminar	64	0.0	0.14	0.0	1.0	0.0	-1.000 ^c	.317

2. Situation of family caregivers

We investigated the quality of nursing care provided by the 42 family caregivers.

1) Occupation

Of the 35 family caregivers who reported the presence or absence of an occupation, 16 (45.7%) were workers (3 males and 13 females) and 19 (54.3%) were non-workers (3 males and 16 females).

2) Whether or not family caregivers lived with their patients

Of the 25 family caregivers living with their patients, 7 (28.0%) and 18 (72.0%) were male and female, respectively. The 16 caregivers not living with their patients were all female. Thus, among the male family caregivers, the percentage of those living with their patients was significantly high ($\chi^2=5.402$ (1), $p=0.020$). As a result of investigating the relationships between the caregivers and their patients according to the caregiver's sex and whether or not they lived together, the following findings were obtained: The patients of the 7 male caregivers living together comprised 4 mothers (57.1%) and 3 wives (42.9%). Of the patients living with female caregivers, 8 (47.1%) and 8 (47.1%) were the caregivers' husbands or mothers, respectively. Among the female caregivers not living with their patients, 10 (66.7%) patients were mothers of their caregivers (Table 3-1).

<Table 3-1> Relationships between the caregivers and their patients according to the caregiver's sex and whether or not they lived together, and the patients' relationships with their caregivers, Sex of the caregivers, Male, Female, Total.

Whether or not living together, and the patients' relationships with their caregivers			Sex of the caregivers		Total	
			Male	Female		
Living together	Mother	N	4	8	12	
		%	57.1	47.1	50.0	
	Mother-in-law	N	0	1	1	
		%	0	5.9	4.2	
	Wife	N	3	0	3	
		%	42.9	0	12.5	
	Husband	N	0	8	8	
		%	0	47.1	33.3	
	Total		N	7	17	24
			%	100	100	100
Not living together	Mother	N		10	10	
		%		66.7	66.7	
	Aunt	N		1	1	
		%		6.7	6.7	
	Father	N		4	4	
		%		26.7	26.7	
	Total		N		15	15
		%		100	100	
Total		N	7	32	39	
		%	100	100	100	

3. Presence or absence of supporters (multiple answers allowed)

Subjects reported what they had learned in the seminar most commonly to care managers (34.4%, n=22[17 family caregivers and 5 care service providers]), followed by family members living together (31.3%, n=20 [16 family caregivers and 4 service provider]), others (29.7%, n=19 [16 family caregivers and 3 service providers]), siblings (25.0%, n=16 [15 family caregivers and 1 service provider]), and day service staff (23.4%, n=15 [10 family caregivers and 5 service providers]) (Table 3-2).

Concerning the individuals (supporters) who were informed of what subjects had learned in the seminar, 26 subjects (18 family caregivers and 8 care service providers [40.6%]) reported that their supporters were very cooperative, 13 subjects (10 family caregivers and 3 service providers [20.3%]) considered their supporters to be slightly cooperative, 6 subjects (5 family caregivers and 1 service provider [9.4%]) provided no applicable answers, 2 family caregivers (3.1%) reported that their supporters were not very cooperative, and 17 subjects had missing values.

<Table 3-2> Individuals who were informed of what subjects had learned in the seminar (multiple answers allowed, n=64)

Individuals who were informed	Seminar participants	Number	Total number (%)
Family members living together	Family caregivers	16	20 (31.3%)
	Care service providers	4	
Siblings	Family caregivers	15	16 (25.0%)
	Care service providers	1	
Care managers	Family caregivers	17	22 (34.4%)
	Care service providers	5	
Day service staff	Family caregivers	10	15 (23.4%)
	Care service providers	5	
Helpers	Family caregivers	4	4 (6.2%)
	Care service providers	0	
Others	Family caregivers	16	19 (29.7%)
	Care service providers	3	

4. Homework progress

1) The subjects' homework progress was investigated using cross-tabulation according to the type of subject (family caregivers and care service providers), followed by chi-square tests.

The percentage of those who considered the homework to be slightly difficult was significantly higher in the family caregivers than in the care service providers, and the percentage of those who provided no applicable answers was significantly higher in the latter group (Table 3-3). The percentage of those considering the assigned exercise to be relatively easy was significantly higher in the former group, and the percentage of those viewing it as very difficult was significantly higher in the latter group (Table 3-4). No significant differences were noted in fluid intake between the groups.

<Table 3-3> Subjects' views regarding the assigned homework

		Subjects, Family, Care		Total	
		caregivers	service providers,		
What did you think of the homework?	Relatively easy	N	5	0	5
		%	14.3	0	10.6
		Adjusted residual	1.4	-1.4	
	Noapplicable answers	N	1	5	6
		%	2.9	41.7	12.8
		Adjusted residual	-3.5	3.5	
	Slightly difficult	N	23	3	26
		%	65.7	25.0	55.3
		Adjusted residual	2.4	-2.4	
	Very difficult	N	6	4	10
		%	17.1	33.3	21.3
		Adjusted residual	-1.2	1.2	
Total	N	35	12	47	
	%	100	100	100	

$$\chi^2=16.036(3),p=.001$$

<Table 3-4> Subjects' perceptions regarding the assigned exercise Subjects, Family caregivers, Care service providers, What did you think of the assigned exercise?

		Subjects, Family, Care		Total	
		caregivers	service providers,		
What did you think of the assigned exercise?	Relatively easy	N	13	0	13
		%	37.1	0	27.7
		Adjusted residual	2.5	-2.5	
	Noapplicable answers	N	6	1	7
		%	17.1	8.3	14.9
		Adjusted residual	.7	-.7	
	Slightly difficult	N	13	6	19
		%	37.1	50.0	40.4
		Adjusted residual	-.8	.8	
	Very difficult	N	3	5	8
		%	8.6	41.7	17.0
		Adjusted residual	-2.6	2.6	
Total	N	35	12	47	
	%	100	100	100	

$$\chi^2=11.039(3),p=.012$$

5. Relationship between changes in dementia symptoms and each investigated item(Changes in caregivers' feelings, confidence, and ways in which they cared for their patients).

In the present study, 65.2% of the dementia symptoms disappeared. We investigated how this induced changes in the caregivers' feelings, confidence, and ways in which they cared for their patients, using a 5-point rating scale (1: very unfavorable, 2: slightly unfavorable, 3: no applicable answers, 4: slightly favorable, and 5: very favorable).

In terms of the results, concerning the subjects' overall impressions of the seminar, 28 (19 family caregivers and 9 care service providers [43.8%]) and 16 (13 family caregivers and 3 care service providers [25.0%]) subjects viewed it as very effective and slightly effective, respectively (total: 68.8%). Seven (5 family caregivers and 2 care service providers [10.9%]) and 30 (20 family caregivers and 10 care service providers [46.9%]) subjects reported very favorable and slightly favorable changes in dementia symptoms, respectively (total: 57.8%). Twenty (17 family caregivers and 3 care service providers [31.3%]) and 23 (14 family caregivers and 9 care service providers [35.9%]) subjects reported very favorable and slightly favorable changes in their feelings regarding care for their patients, respectively (total: 67.2%).

Twenty-two (14 family caregivers and 8 care service providers [34.4%]) and 23 (19 family caregivers and 4 care service providers [35.9%]) subjects reported very favorable and slightly favorable changes in the ways they cared for their patients, respectively

(total: 70.3%). Seventeen (10 family caregivers and 7 care service providers [26.6%]) and 24 (19 family caregivers and 5 care service providers [37.5%]) subjects reported very favorable and slightly favorable changes in their confidence in caring for their patients, respectively (total: 64.1%) <Table 3-5>.

Thus, a higher percentage of care service providers than family caregivers felt very or slightly favorable changes in dementia symptoms after the seminar.

<Table 3-5> Subjects' evaluations of seminar-induced changes

			Very unfavorable	Slightly unfavorable	No applicable answers	Slightly favorable	Very favorable	Others	Missing values	Total
Overall impressions	Family caregivers	N	0	0	2	13	19	0		34
		%	0	0	5.9	38.2	55.9	0		100
	Care service providers	N	0	0	0	3	9	0		12
		%	0	0	0	25.0	75.0	0		100
Total	N	0	0	2	16	28	0	18	64	
	%	0	0	3.1	25.0	43.8	0	28.1	100	
Changes in cognitive symptoms	Family caregivers	N	0	1	5	20	5	3		34
		%	0	2.9	14.7	58.8	14.7	8.8		100
	Care service providers	N	0	0	0	10	2	0		12
		%	0	0	0	83.3	16.7	0		100
Total	N	0	1	5	30	7	3	18	64	
	%	0	1.6	7.8	46.9	10.9	4.7	28.1	100	
Changes in feelings	Family caregivers	N	0	1	3	14	17	0		35
		%	0	2.9	8.6	40	48.6	0		100
	Care service providers	N	0	0	0	9	3	0		12
		%	0	0	0	75.0	25.0	0		100
Total	N	0	1	3	23	20	0	17	64	
	%	0	1.6	4.7	35.9	31.3	0	26.6	100	
Changes in ways in which caregivers looked after patients	Family caregivers	N	0	1	0	19	14	0		34
		%	0	2.9	0	55.9	41.2	0		100
	Care service providers	N	0	0	0	4	8	0		12
		%	0	0	0	33.3	66.7	0		100
Total	N	0	1	0	23	22	0	18	64	
	%	0	1.6	0	35.9	34.4	0	28.1	100	
Changes in confidence in caring for patients	Family caregivers	N	0	2	3	19	10	0		34
		%	0	5.9	8.8	55.9	29.4	0		100
	Care service providers	N	0	0	0	5	7	0		12
		%	0	0	0	41.7	58.3	0		100
Total	N	0	2	3	24	17	0	18	64	
	%	0	3.1	4.7	37.5	26.6	0	28.1	100	

VII. Discussion

Although caring for dementia patients is regarded as a major issue among the elderly, this practice remains underdeveloped. According to Hattori (2013), many non-pharmaceutical approaches for dementia patients have been proposed, but only a few of them have a high evidence level, and research on such approaches has stagnated as it is very difficult to investigate their effects on such patients. In the present study, we provided direct instructions for the family caregivers of 64 dementia patients, using Takeuchi's theory. As a result, of the 141 dementia symptoms exhibited by these patients, 92 (65.2%) disappeared and 15 (10.6%) were almost completely resolved after the seminar (total: 75.8%). In our seminars, each dementia symptom reported by patients' families is regarded as a single symptom instead of being collectively referred to using a technical term, and guidance continues to be provided until each symptom disappears. For instance, symptoms that are collectively regarded as "poriomania" in general are treated more specifically in our seminars: 1) going out of the house at night, 2) going to a nearby mountain, and climbing up on the roof of houses, and 3) walking up and down the hall all day. It has been reported that dementia symptoms can occur due to various environmental factors and patients' physiological state. Therefore, our seminars focus on and monitor each detailed symptom while ensuring 1500 mL/day of fluid intake, 1500 kcal/day, exercise (walking), and spontaneous bowel movements. Through the present seminar, increased fluid intake and activity levels resulted in the disappearance or alleviation of dementia symptoms, which led to a further increase in the fluid intake and activity levels. According to an epidemiological survey, walking has a clear inhibitory effect against the onset of dementia (Abbott, White, Ross et al., 2004). Thus, increased activity levels (walking) and fluid intake achieved the effect of resolving or relieving dementia symptoms through increased levels of arousal. This suggests that dementia symptoms can be resolved or alleviated depending on care, in which fluid intake and activity levels are important factors, and that Takeuchi's theory is useful in such care.

The questionnaire survey conducted after the seminar revealed care-related differences between the family caregivers and care service providers. Unlike in the past, men also care for their immediate family and relatives nowadays. Among the male family caregivers, the percentage of those living with their patients was significantly higher than those not living with their patients, whereas a significantly lower percentage of female caregivers lived with their patients than those not living together. Among the family caregivers investigated, the percentage of females was higher than that of males; however, we obtained very interesting findings regarding the relationship between the caregivers' sex and their patients. Of the 43 family caregivers, only 2 (4.6%) were daughters-in-law of their patients, and there was a tendency for dementia patients to be cared for by those in a close blood relationship. Thus, it is expected that patients will more likely be looked after by their sons in the future (Hirayama,2014) .

Caregivers informed their family members living together, care managers, and/or siblings of what they had learned in the seminar, and cared for their patients in coordination. In particular, family caregivers asked for cooperation from not only professionals, but also from other individuals/organizations. Concerning the assigned exercise aimed at increasing the patients' activity levels, care service providers considered the exercise to be very difficult, whereas family caregivers viewed it as relatively easy. On the other hand, unlike service providers, the lives of family caregivers were hampered by their patients' dementia symptoms at all hours of the day and night. In the present seminar, as patients' dementia symptoms were resolved or alleviated, their caregivers noted that it is possible to treat these symptoms, and advanced various ideas regarding care for these patients. This helped caregivers to make related propositions, and to inform various other individuals involved in the care about the seminar in order to obtain closer cooperation. Through this process, caregivers showed changes in confidence in caring for their patients, ways in which they communicated with their patients, and care-related feelings. These changes became sources of motivation for family caregivers to continue their at-home lives with their patients, and to deal with things that were more likely to be viewed as very difficult and neglected by care professionals.

Concerning the family caregivers' overall impressions of the seminar, 7 (5 family caregivers and 2 care service providers [10.9%]) and 30 (20 family caregivers and 10 service providers [46.9%]) subjects reported very favorable and slightly favorable changes in dementia symptoms, respectively (total: 57.8%). This total percentage was lower than the rate of caregivers viewing the seminar as very or slightly effective (68.8%), that of caregivers reporting very or slightly favorable changes in their care-related feelings (67.2%), and that of caregivers reporting very or slightly favorable changes in confidence in caring for their patients (64.2%). In addition, the total percentage was lower than the rate (75.8%) of symptoms that actually disappeared (65.2%) or were almost completely resolved (10.6%). Thus, the disappearance of dementia symptoms did not lead to family caregivers' positive evaluation of symptom changes. This suggests that, even if dementia symptoms are resolved or alleviated, family caregivers assume that such effects are only temporary, and continue to feel deeply anxious because of their history of being hindered by such symptoms over the years. Thus, there is a need to adopt continued approaches to family caregivers while increasing the rate of actual disappearance/alleviation of symptoms.

Study limitations

In the present study, we collected data from 64 subjects, which is not sufficient. However, this study is a significant step considering that nursing care for dementia patients remains underdeveloped. In addition, our findings are very helpful in analyzing each patient thoroughly, and developing seminars for those who did not show favorable changes in their symptoms in this study. Because our seminars are held at 6-month

intervals nationwide, we intend to accumulate more samples for quantitative analyses.

VIII. Conclusion

On the basis of the findings of our 6-month seminar, we make the following 4 propositions: 1) dementia symptoms can be resolved or relieved depending on care, 2) fluid intake and activity levels are important factors for caring for dementia patients, 3) professionals providing such care can improve related knowledge and skills, and 4) on resolving or relieving dementia symptoms, caregivers' stress can be reduced, which facilitates their continued at-home lives. Thus, to resolve and/or alleviate dementia symptoms successfully, it is necessary to disseminate Takeuchi's theory-based family-care seminars, which are accompanied by a follow-up 6 months later.

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