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Classification of Caregiving Families according to the Family Caregivers' Appraisal Checklist

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This study aimed to classify caregiving families according to the Family Caregivers' Appraisal Checklist (FACL; Horiguchi et al., 2012), which was originally developed to evaluate the probability of continuing caregiving. After nationwide targeting in Japan, the selected survey candidates included 1279 families utilizing domiciliary nursing services chosen by stratified two-stage sampling, and available data were obtained from 945 out of 1020 returned responses (return ratio: 79.8%). Scores for the seven components of FACL were cluster analyzed, and the following six clusters were extracted: Cluster A (12.8%) yielded high scores for all components; Cluster B (34.0%) yielded average scores; Cluster C (20.7%) scored mostly average but low for "quality of care service"; Cluster D (15.8%) showed relatively low scores for all components; Cluster E (11.4%) yielded low scores for all components except for "quality of care service" and "preparedness for emergencies"; and Cluster F (5.3%) scored significantly poorly for all components except for "preparedness for emergencies." Significant intercluster differences were observed for care recipient's age, the number of medical care, employment status, principal caregiver's subjective health, and the advice from family and friends. Caregiving duration was significantly associated with "positive appraisal of family caregiving," the number of medical care and the number of care types, and marginally with the level of care stipulated by the public long-term care insurance program ($p < 0.07$). Implications of classification of family type according to the FACL and the importance of positive appraisal of caregiving are discussed along with the future direction of use of the FACL.

INTRODUCTION

In the 10 years since its inception, the long-term care (LTC) insurance system is currently the core of the social security system supporting the everyday life of the elderly in Japan. Although there has been rapid increase in the elderly population and promotion of home-based medical care, the number of severely disabled care recipients in Japan has been increasing. This situation has led to issues associated with heavy burden placed on caregivers

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through caring for family members (1). Almost 70% of those requiring care as well as their families wish to receive home care (2). Nevertheless, the more severe the care recipient's condition, the more likely that person will become institutionalized (3).The care recipient's condition worsens when his/her family cannot maintain the required level of home care. To maintain care recipients in their familiar community/family life where they are confident and comfortable, it is of great importance that the family caregivers maintain an appropriate home environment. For this, it would also be expected that an appropriate support system be devised and established.

It seems obvious that long-term home care will be a substantial burden on the family. Thus, previous studies have focused mostly on the so-called negative aspects of caregiving (4-7), such as burden and stress. Although majority of these studies addressed the hurdles to be overcome in continuing/maintaining long-term home care, some paid attention to factors that enhance home care (8-12), such as positive appraisal of caregiving and home care, caregiving satisfaction, care mastery, willingness to continue home care, and others. It has also been suggested that evaluation of home nursing care should focus on both negative and positive aspects (13-15).

In contrast, previous studies in the field of long-term home care have primarily focused on the principal caregiver, i.e., the personal viewpoint. Although it is certain that the principal caregiver plays many roles in home care, other family members frequently cooperate in its provision and they also experience a wide variety of related issues, including a significant impact from the care recipient. Family members must cooperate with each other in providing home care, and they may have to restructure their family life according to the specific requirements of their home situation. It therefore seems reasonable that the issues associated with long-term home care should be regarded as issues for the family unit or system, not solely for the primary caregiver.

Relevant databases were searched and only a few studies were found to have addressed the issues concerning long-term home care based on the family unit (16-17). One of the reasons for this might be attributable to the limited measures available at the family unit level in this field, whereas many personal-level measurements have been developed and used in other studies. Therefore, we developed a family caregivers' appraisal checklist (FACL) (18), a brief assessment tool for use with the family unit, on the basis of interviews with family members involved in successful long-term home care and by focusing on the factors that would be effective for its maintenance (19). The FACL comprises the following seven components: "balance between life and caregiving"; "family caregiver's roles"; "positive acceptance of home care"; "positive appraisal of family caregiving"; "family's economic status"; "preparedness for emergencies"; and "quality of service care," with 15 items to be checked by the caregiving family.

For families involved in home care to continue without exhaustion, it is critical that domiciliary nurses assess the care situation accurately (including caregivers' quality of life and coping behavior) and provide appropriate and effective assistance/support. However, such appropriate decision making is not necessarily easy for the domiciliary nurse, and the decisions reached may sometimes depend largely on the nurse's experience and skills. Thus, reliable assessment is needed in this situation. For this purpose, the FACL was originally developed to assess the feasibility of continuing home care and to clarify the components for maintaining it that are most at risk (19). It would be expected that domiciliary nurses, and also the caregiving family, specify the inadequate/unsatisfactory areas in family caregiving based on FACL assessment and discuss and/or consult with the family on how to compensate for these.

Caregiving families do not follow a set pattern, and one of the most effective ways of using the FACL might be to devise the most suitable approach according to family characteristics. The present study, based on a nationwide large-scale questionnaire survey in Japan, aimed to classify the family type by cluster analysis on the basis of the FACL components and clarify the particular characteristics of family types.

Table I: Demographics of participants

		n (945)	%
Care recipients			
Gender	Female	546	57.8
	Male	391	41.4
	NA	8	0.8
Age group (yrs old)			
	40〜64	64	6.8
	65〜74	160	16.9
	75 and over	711	75.2
	NA	10	1.1
Long-Term Care insurance system			
	Care level 1	61	6.5
	Care level 2	106	11.2
	Care level 3	135	14.3
	Care level 4	168	17.8
	Care level 5	451	47.7
	Health insurance system	15	1.6
	NA	9	1.0
Caregiving duration (months)		69.8	(65.6)
Cognitive impairment (demented)		482	51.0
Medical care (received)		588	62.2
Living arrangement			
	Alone	9	1.0
	Nuclear family	479	50.7
	(with spouse)	212	22.4
	Three-generations	274	30.0
	Other arrangement	111	11.7
	NA	72	7.6
Principal caregiver			
Gender	Female	726	76.8
	Male	212	22.4
	NA	7	0.7
Age group (yrs old)			
	59 or younger	259	27.4
	60〜69	336	35.6
	70〜79	223	23.6
	80 and over	115	12.2
	NA	12	1.3
Relationship to care recipient			
	Wife	303	32.1
	Daughter	242	25.6
	Daughter-in-Law	153	16.2
	Husband	122	12.9
	Son	87	9.2
	Others	28	3.0
	NA	10	1.1

NA: not available

METHODS

Sampling and Participants

A large-scale questionnaire survey, aimed partly at developing the FACL, was conducted from early November to mid-December 2011. The survey participants were family care receivers accessing visiting nursing services under the public LTC insurance system or the health care insurance system in Japan, selected by the following stratified two-stage sampling method. First, from a total of 1110 domiciliary nursing stations listed in the Welfare and Medical Service network system (20), each 30 stations per prefecture (in order of the number of nurses and public health nurses in each prefecture) were selected from 37 prefectures in Japan, except from the East Japan earthquake disaster area. We then sent our research protocol to the administrators of the selected nursing stations, who were then asked to cooperate with the study, and consent was obtained from 83 stations (13.4%).

The administrators were asked to select up to 20 caregiving families per station and include the provision of different levels and durations of caregiving. Through this strategy, three to 20 families were listed from all 83 participating stations, resulting in the inclusion of 1279 families. We requested participation in the study from these families by mail, and responses were obtained from 1020 families (response rate, 79.8%).

Survey method

The survey questionnaires and letters explaining the survey purpose were distributed to the family caregivers by domiciliary nurses. When caregivers agreed to participate in the study, they responded to the questionnaire using the return envelope addressed directly to the researchers.

Measurements

1) FACL

The FACL method was used as an indicator to evaluate the continuing possibility of home care, and it comprised the following seven components (with 15 items): “balance between life and caregiving (3 items: diversion from family caregiving, pace of family caregiving, and health care for the family)”; “preparedness for emergencies (preparing for emergencies)”; “positive appraisal of family caregiving (4 items: positive attitude among family members, family caregiver’s satisfaction, personal growth through the family caregiver, and love for the care recipient)”; “family caregiver’s roles (3 items: acceptance of the family caregiver’s roles, quality of family caregiving, and support/cooperation within the family)”; “family’s economic status (the family economic status with regard to caregiving)”; “quality of care service (quality of the care received)”; and “positive acceptance of home care (2 items: focus on the here and now of caregiving, and willingness to continue home care).” Family participants were asked to respond to the question, “To what extent does your family agree with the situation as described for each item?” on a four-point Likert scale, from “not at all (1)” to “definitely true (4).” Two out of the four subscales consisting of two or more items showed a satisfactory level of internal consistency ($\alpha = 0.85$ for “positive appraisal of family caregiving,” $\alpha = 0.78$ for “balance between life and caregiving,” and $\alpha < 0.60$ for the remaining two items).

2) Demographics and care conditions of caregivers and care recipients

The survey questionnaire included various items associated with the demographics and care conditions of both caregivers and care recipients. Demographic items asked the caregiving family about the number of family members living with the care recipient, relationship with the care recipient, duration of caregiving, gender and age of the principal caregiver, and others. With regard to the care recipient, items included gender, age, level of care needed according to the LTC insurance program, level of dependence, degree of cognitive impairment, and the number of medical care required. The level of dependence in activities of daily living (ADL) was evaluated on a scale developed by the Japanese Ministry of Health and Welfare (JMHW scale).

The ADL items queried the level of support/assistance that was required by the care recipient for eating, taking medication, bathing, dressing, walking, wheelchair use, and toileting on a four-point Likert scale (“none,” “a little,” “moderately,” and “mostly”), whereas an item related to diaper changing/incontinence provided only dichotomous response alternatives such as “yes” and “no.” Of these eight items, the principal caregiver was asked to choose items she/he taking care daily, in addition to one of the following medical care. With regard to medical care received, items included gastric fistula, artificial anus, indwelling urethral catheter, suction of phlegm, home oxygen therapy, home mechanical ventilation, intravenous therapy, insulin injections, home parenteral nutrition, decubitus, dialysis, and others, with “yes” or “no” response alternatives. We specified that living arrangement be based on the kinship, such as “alone,” “nuclear family,” “with spouse,” “three-generations,” and “other arrangement.”

Statistical analyses

Hierarchical cluster analyses (Ward’s method) were employed on the seven FACL components to classify families caring for a disabled family member. These seven components differed in both the number of items and score distribution. Therefore, standardized scores for individual components were used to facilitate the comparison of cluster types obtained. Relationships between demographics and cluster types were examined by analysis of variance with Bonferroni correction for post hoc testing. Differences in the rate of gender differences, dementia, and caregiving family structure according to the cluster type were examined by χ^2 testing. Multiple regression analysis with stepwise selection was used to determine the variables for care recipients and the caregivers’ family, including the FACL components, with regard to the duration of caregiving.

Ethical considerations

Participants and nursing station managers were informed of the purpose and methods of this study in a letter, i.e., complete anonymity would be guaranteed, their participation would be of their own free will, and that refusal to participate would not result in any negative consequences. The participants were also informed that this study had no connection with the relevant care service organization. The questionnaire clearly stated that returning the questionnaire indicated consent. This study was approved by the ethics committee of Kobe University Graduate School of Health Sciences.

RESULTS

Participant demographics

Of the 1020 questionnaires returned, responses to the seven FACL components (15 items) were obtained from 959 families (94.0%), and after excluding 14 families also caring for a child, 945 (92.6%) were analyzed in this study. Overall, responses indicated that caregivers experienced heavy burden in caring for their family members, of whom approximately 75% were aged 75 years or older, approximately 50% were certified as being on care level 5, and more than 50% were ranked C on the level of independence and were receiving care for dementia and/or medical care (Table I). The mean duration of caregiving was 69.8 months. Regarding the family structure, approximately 50% were nuclear families and approximately 30% were three-generation households, whereas only 1.0% lived alone and were cared for by family members living apart.

Clustering care families based on the FACL components

Following the merging and separation of clusters, a six-cluster classification system was adopted on the basis of the interpretability of their distinctive features and balance with regard to the number of participants across clusters.

Table II shows the mean scores [and 95% confidence intervals (95%CI)] for the seven FACL components by cluster. Significant main effects of cluster were observed for all components. Post hoc tests on individual components revealed the following results: cluster A (12.8%) scored significantly higher than the other clusters on all components; cluster F (5.3%) generally scored lower than the others except for “preparedness for emergencies,” for which cluster D (15.8%) scored significantly lower than the others; clusters C (20.7%) and F scored significantly lower than the others for “quality of care service”; the scores of clusters B (34.0%) and E (11.4%) showed average and relatively low levels, respectively, for all components.

Table II: Mean scores on the FACL components by cluster

	A	B	C	D	E	F		
	higher scoring	average scoring	low scoring for care service	low scoring in preparedness for emergencies	highly dependent on care service	lowest scoring		
FACL components	(121)	(321)	(196)	(149)	(108)	(50)	F value	Bonferroni
Balance between life and caregiving (range: 3-12)	9.0	8.1	7.3	6.7	6.1	6.0	47.2 ***	A>B>C>D,E,F
	(8.7 - 9.4)	(7.9 - 8.4)	(7.1 - 7.6)	(6.4 - 7.0)	(5.8 - 6.5)	(5.5 - 6.5)		
Family caregiver's roles (range: 3-12)	11.0	9.0	9.1	8.3	8.0	7.0	108.2 ***	A>B,C>D,E>F
	(10.8 - 11.2)	(8.9 - 9.1)	(8.9 - 9.2)	(8.1 - 8.5)	(7.8 - 8.2)	(6.6 - 7.3)		
Positive acceptance of home care (range: 2-8)	7.4	6.1	6.4	5.9	5.5	3.7	152.1 ***	A>C>B>D>E>F
	(7.3 - 7.6)	(6.1 - 6.2)	(6.3 - 6.5)	(5.8 - 6.0)	(5.3 - 5.6)	(3.5 - 4.0)		
Positive appraisal of family caregiving (4-16)	13.2	10.4	10.3	8.5	7.9	6.8	114.8 ***	A>B,C>D,E,F
	(12.8 - 13.6)	(10.2 - 10.7)	(10.0 - 10.6)	(8.2 - 8.9)	(7.5 - 8.3)	(6.2 - 7.4)		D>F
Family's economic status (range: 1-4)	3.1	2.8	2.2	2.3	2.0	1.8	47.2 ***	A>B>C,D,E,F
	(3.0 - 3.3)	(2.7 - 2.9)	(2.1 - 2.3)	(2.2 - 2.4)	(1.9 - 2.2)	(1.5 - 2.0)		C,D>F
Preparedness for emergencies (range: 1-4)	3.6	3.2	3.2	1.8	3.2	3.1	324.7 ***	A>B,C,E,F>D
	(3.5 - 3.7)	(3.1 - 3.2)	(3.1 - 3.2)	(1.7 - 1.8)	(3.1 - 3.2)	(3.0 - 3.2)		
Quality of service care (range: 1-4)	3.4	3.0	1.7	2.3	3.1	1.8	215.7 ***	A>B,E>D>C,F
	(3.3 - 3.5)	(2.9 - 3.1)	(1.6 - 1.8)	(2.3 - 2.4)	(3.0 - 3.2)	(1.7 - 2.0)		

***p<.001. Parenthesized values at headings indicate the number of families and those values in table indicate 95% confident intervals.

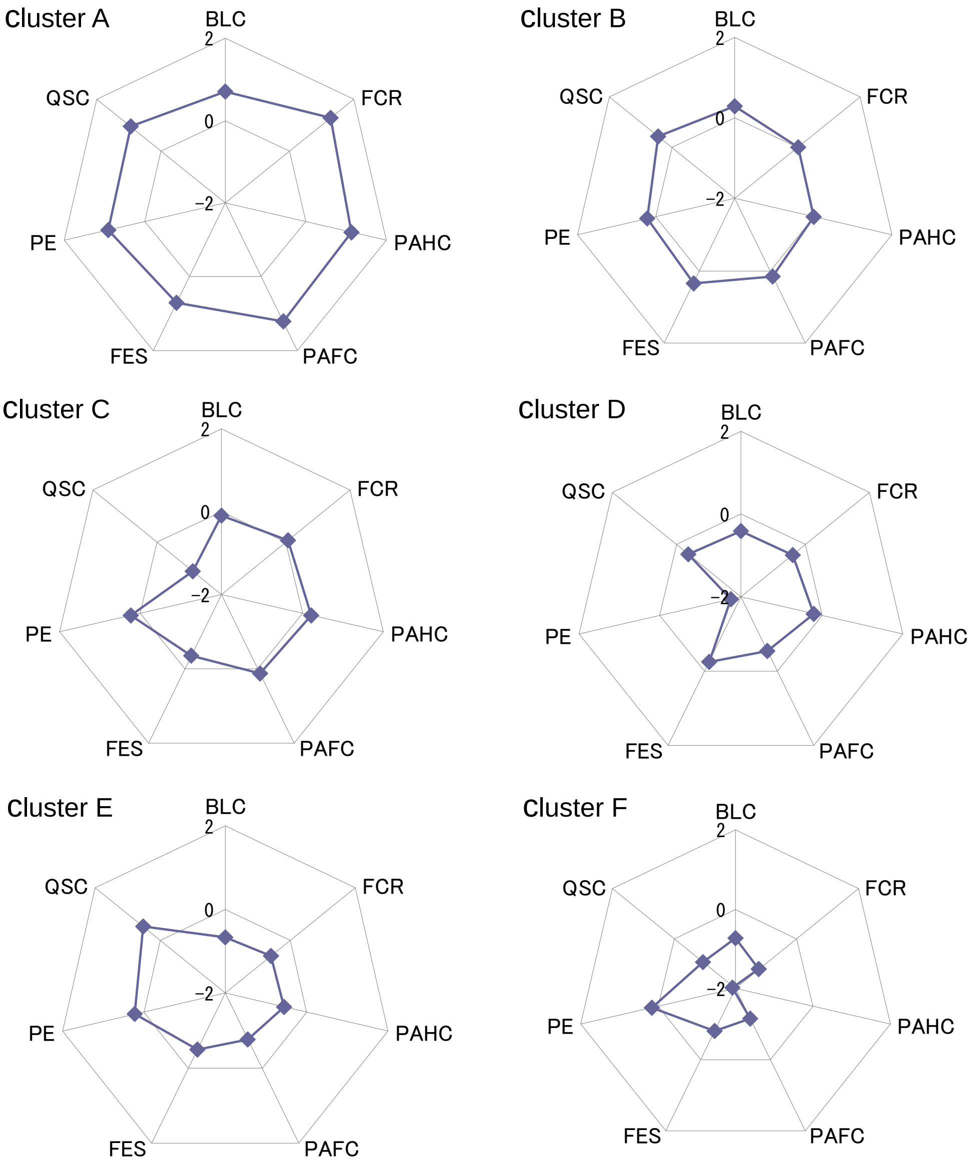

Figure 1. Types of families according to the FACL components

Abbreviations

BLC: balance between life and caregiving, FCR: family caregiver's roles, PAHC: positive acceptance of home care, PAFC: positive appraisal of family caregiving, FES: family's economic status, PE: preparedness for emergencies, QSC: quality of service care

Visual inspection on a radar chart plotting the standardized scores of the seven FACL components was conducted to clarify cluster characteristics (Figure 1). Cluster A was labeled the “higher scoring group” because of its high scores for all components. Cluster B was labeled the “average scoring group” because of its average scores for all components. Cluster

C was labeled the “low scoring for care service group” because of its average scores for all but the care service component. Cluster D was labeled the “low scoring in preparedness for emergencies” because of its low scoring, particularly for “preparedness for emergencies.” Cluster E was labeled the “highly dependent on care service group” because of its low scores on all components except for “care service” and “preparedness for emergencies.” Cluster F was labeled the “lowest scoring group” because of having the lowest scores for almost all components.

Association of patient demographics and care conditions with the cluster type

Table III shows the mean scores (and 95%CI) of participant demographics and caring conditions by cluster. Significant main effects of cluster were observed on care recipients’ age and the number of medical care received as well as on age, employment status, subjective health of principal caregivers, and the advice from family and friends. Post hoc tests revealed that care recipients in cluster C were significantly younger than those in the other clusters, and the number of medical care received was significantly less in clusters B, D, and E. Although cluster C was “low scoring for care service group,” the number of medical care received was significantly less compared with that for clusters B, D, and E. The principal caregiver’s age was lower in cluster F than the others, as was the lack of advice and help from family and friends. Cluster B scored high on the employment status and subjective health. Level of care tended to vary by cluster ($p < 0.08$).

The FACL components, demographics, and care conditions associated with the duration of caregiving

As shown in Table IV, stepwise regression analysis on the caregiving duration extracted four variables [$F(4,843) = 10.97$, $p < 0.001$]. Of these variables, one was the FACL component “positive appraisal of family caregiving” and the remaining three were caregiving conditions (number of medical care received, number of care types, and care level), whereas the association with LTC was marginal ($p < 0.07$). All variables were positively associated with the caregiving duration, i.e., when scoring for “positive appraisal of family caregiving” increased by one, the caregiving duration was extended by 2.1 months; when the number of medical care received increased by one, the duration was extended by 5.6 months; and when the number of care types increased by one, the duration and level were extended by 3.3 and 3.7 months, respectively.

DISCUSSION

The present study, based on a large-scale questionnaire survey covering most of Japan, classified the type of families involved in long-term home care by cluster analyses on FACL components and clarified the particular characteristics of family types. Six cluster types were extracted and salient differences were observed with regard to the care recipient age; the number of medical care; age, employment status, and subjective health of principal caregivers; and the advice from family and friends. The caregiving duration was associated significantly with “positive appraisal of family caregiving,” “the number of medical care received,” and “the number of care types” and marginally with “care level.”

Classification and characteristics of family types involved in long-term care

Cluster A, labeled the “higher scoring group” (12.8%), and cluster B, labeled the “average scoring group” (34.0%), could be expected to continue home care in future because of the adequacy of their resources, including their cognitive appraisal of home care. Indeed,

Table III: Characteristics of care recipients and caregivers and care conditions by cluster

	A	B	C	D	E	F		
	higher scoring	average scoring	low scoring for care servic	low scoring in preparedness for emergencies	highly dependent on care service	lowest scoring	χ^2 or	
Characteristics and care conditions	(121)	(321)	(196)	(149)	(108)	(50)	F value	Bonferroni
Care recipient								
Female (%)	55.5	62.3	55.7	54.7	60.2	56.0	χ^2=4.0 ns	
Age (yrs old)	83.2	83.2	79.0	80.1	81.5	82.2	5.1 ***	A,B>C
	(81.3 - 85.1)	(82.1 - 84.4)	(77.6 - 80.5)	(78.4 - 81.8)	(79.6 - 83.5)	(79.3 - 85.1)		B>D
Care level (range: 1-5)	4.1	3.8	4.0	3.9	4.0	3.8	2.0 †	
	(3.9 - 4.3)	(3.6 - 3.9)	(3.9 - 4.2)	(3.7 - 4.1)	(3.7 - 4.2)	(3.5 - 4.2)		
Level of dependence (range: 1-4)	3.5	3.4	3.5	3.5	3.5	3.4	.5 ns	
	(3.4 - 3.7)	(3.4 - 3.5)	(3.4 - 3.6)	(3.3 - 3.6)	(3.3 - 3.6)	(3.2 - 3.6)		
Dementia (%)	49.1	52.8	53.2	57.8	57.3	61.2	χ^2=3.6 ns	
Number of medical care	1.2	1.0	1.5	1.0	1.0	1.4	5.6 ***	C>B,D,E
	(1.0 - 1.4)	(.8 - 1.1)	(1.3 - 1.6)	(.8 - 1.2)	(.8 - 1.3)	(1.1 - 1.7)		
Caregiving duration (months)	82.7	69.1	71.4	59.2	66.7	74.7	1.8 ns	
	(70.9 - 94.6)	(61.9 - 76.4)	(62.1 - 80.6)	(48.6 - 69.8)	(54.2 - 79.2)	(56.5 - 92.8)		

Continued

Continued

Principal caregiver								
Relation to care recipient (%)								
Wife	37.0	29.1	32.8	38.3	30.6	28.0		
Husband	10.1	11.3	17.5	14.1	15.7	6.0		
Daughter	25.2	29.1	23.8	22.1	24.1	30.0		
Daughter-in-Law	12.6	18.8	14.3	11.4	19.4	26.0		
Son	10.9	8.8	9.5	10.7	8.3	6.0		
0thers	4.2	3.1	2.1	3.4	1.9	4.0	χ^2=25.4 ns	
Age (yrs)	67.7	65.7	64.8	66.1	65.9	61.2	2.6 *	A>F
	(65.6 - 69.7)	(64.5 - 67.0)	(63.2 - 66.4)	(64.3 - 67.9)	(63.8 - 68.1)	(58.0 - 64.4)		
Number of care types	4.7	4.7	5.0	5.0	5.1	5.0	.9 ns	
	(4.4 - 5.1)	(4.5 - 5.0)	(4.7 - 5.3)	(4.7 - 5.3)	(4.7 - 5.4)	(4.5 - 5.6)		
Job (%)	18.5	25.0	23.6	14.9	13.9	18.0	χ^2=11.3 *	
Subjective health (%)	77.5	81.4	72.7	69.6	66.7	61.2	χ^2=18.9 **	
Help from family and friends (%)	66.9	65.7	65.8	55.7	57.4	52.0	χ^2=9.9 †	
Advice from family and friends (%)	67.8	62.3	67.3	54.4	50.0	50.0	χ^2=16.6 **	
Living arrangement (%)								
Alone	1.7	0.6	1.5	0.7	0.0	2.0		
Nuclear family	48.3	45.9	56.9	59.7	47.2	46.0		
(with spouse)	23.3	20.6	23.1	29.5	18.5	18.0		
Three-generations	32.5	31.9	26.2	19.5	35.2	30.0		
Other arrangement	9.2	14.1	9.2	12.1	12.0	12.0		
NA	8.3	7.5	6.2	8.1	5.6	10.0	χ^2=22.2 ns	

*p<.05, **p<.01, ***p<.001, †p<.08. ns: not significant. Parenthesized values at headings indicate the number of families and those values in table indicate 95% confident intervals.

the caregiving duration in the former group was longer than that in the other groups (Table III). The FACL was originally developed according to interviews with family members involved in successful long-term home care on the basis of the factors that would be effective for maintaining long-term home care. Therefore, the finding that cluster A scored higher on all the FACL components demonstrated that the longest duration of family caregiving might suggest in part a kind of validity, i.e., the FACL may reflect the possibility of continuation of home care. In addition, almost all cluster groups received advice and help from family and friends for their home care and predominantly had others helping share the caregiving (Table III). These situations would obviously be desirable for overcoming any issues in their family life, particularly when the caregiving family finds difficulty in maintaining the required standard of home care.

Clusters C–F included the more negative components. Cluster C, labeled the "low scoring in care service group" (20.7%), was at average levels with the only exception the "care service" component. Satoh et al. (21) reported that perceived social support and satisfaction with support received influenced both mental and physical health. The FACL comprised 15 items about subjective appraisal by families. The item about care services was "Does your family think that the care services you received were sufficient for you?" It seems reasonable that family appraisal of care services provided by external resources should reflect not only the various types and quality of care services received but also cognition of the adequacy and/or their perceived satisfaction with these services. Such cognition could enhance both the physical and mental health/well-being of the principal caregiver and their family, possibly resulting in continuation/maintenance of home care.

Cluster C was characterized by the younger age of care recipients, a slightly higher care level required, and a greater number of medical care received. This group might therefore require enhanced nursing and medical care. Although the percent advice and help from family and friends was found to be similar to that in clusters A and B (Table III), respondents claimed that services were inadequate. After a revision of medical and care service fees in 2012 (22), the compensation rate for taking care of severely disabled recipients with intensive medical care needs has been increased, and coordination of medical and nursing care and enhancement of nursing and care services have progressed. Therefore, the standards offered by official care services should have improved, in turn helping reduce claims for any shortfall in care services.

Cluster D was characterized by particularly low scoring on preparedness for emergencies. This item asked families about their cognitive appraisal of when the condition of their severely disabled care recipients might worsen critically and how they visualized and expected to cope with such a situation. Another characteristic of this group is the lower level of medical care received than the other groups, which might lead to lack of preparedness for emergencies. Future studies should investigate whether appropriate care services could help in this respect.

Cluster E generally scored lower, whereas average scoring was noted for care service, preparedness for emergencies, and family economic status. It could be surmised from this that fulfillment of care services in particular might increase the plausibility of their continuing home care. Principal caregivers in cluster E were less likely to receive any advice from other family members and friends. The families assigned in this cluster also did not feel positive appraisal of family caregiving as compared to those in clusters A to C. Niina et al. (23) revealed that emotional support from such advisers could alleviate their caregiving stress and burden. Sakurai et al. (11) described that a positive appraisal of family caregiving could reduce the restriction of freedom, one of caregiving burden. As shown in Table III, families in cluster E were deemed to be lacking these "protective" components. Therefore, they would be highly expected to encounter greater difficulties in continuing their home care in the future.

Cluster F scored lowest among the six groups on all but one component, "preparedness for emergencies." This cluster was also characterized by more elderly care recipients, more number of medical care received, lower caregivers' subjective health status, as well as lower utilization of advice and help from family and friends. The reason for the findings in cluster F might be attributable to our selection of the survey sample for family caregivers who were in constant contact with or were utilizing domiciliary nursing stations. Nonetheless, these families might be less likely to continue with home care because of the negative aspects revealed by their lack of responses. An intensive approach and enhanced support should be provided to such families.

Demographics, care conditions, and the FACL components associated with the duration of home care

Caregiving duration was found to be associated with the number of medical care, number of care types, positive appraisal of family caregiving as assessed by the FACL and care level (Table IV). Positive appraisal of family caregiving can be engendered by cognitive change processes (18, 24) along with long-term care experiences. It might be suggested that with the prolongation of home care, family life with regard to caregiving would stabilize. This situation could lead to the enhancement of positive appraisal of family caregiving, which consisted of "positivity of the family," "level of family caregiving satisfaction," "personal growth through the family caregiver," and "love for the care recipient."

In contrast, positive associations with the three care conditions seem somewhat bizarre and were the opposite of general expectations. However, our survey sample was selected only from families currently continuing home care successfully in a way that based on a cross-sectional observation, the longer their caregiving duration, the worse their care recipients' physical condition, leading to increased medical care, care types, and care level. Indeed, a reasonable supposition might be that as the duration of home care increases, care recipients' age and physical condition deteriorates, resulting in an increased requirement for care. As a whole, prolonged home care would engender positive appraisal of home care in family caregivers despite deterioration in their recipients' condition.

Table IV: Variables associated with caregiving duration by stepwise regression

Variables selected	Beta	(SE)	β	p
Number of medical care	5.589	(1.985)	.103	.005
Number of care types	3.273	(1.246)	.094	.009
Positive appraisal of family caregiving (FACL)	2.120	(.827)	.087	.011
Care level	3.655	(1.990)	.071	.067

R^2: 0.05, adj R^2: 0.045, $p < .000$.

Beta & β: unstandardized & standardized regression coefficients, respectively.

CONCLUSION AND FUTURE DIRECTIONS

In the present study, we classified six types of family caring for recipients at home by means of cluster analyses of the FACL, which was developed for assessing the potential of long-term home care. Of the seven components of the FACL, positive appraisal of family caregiving was substantially associated with the caregiving duration. The care required by the individual family might be subjectively assessed by domiciliary nurses. Thus, the care provided by domiciliary nurses might depend largely on their experience and partly on their capabilities. It could be the case, nevertheless, that the care services provided might not correspond to those needed, and the FACL could be complementarily utilized to detect the particular care features relevant to the individual family. That is, it would be expected that the needs of the individual family and/or its appropriate and effective care support would be easily and clearly determined by assessing the FACL. Moreover, use of the FACL could provide information on the negative aspects of the individual family with respect to its continuing capability to provide the long-term home care that could be shared between family caregivers and domiciliary nurses. They could therefore focus on such points and discuss how to address them, for example, by reconstruction of the appraisal of home care and facilitation of coping strategies that could be readily employed.

The two main limitations of this study are that 1) assessment of families by the FACL depends on the timing of the cross-sectional questionnaire survey and 2) the validity of the FACL as an assessment tool for continuation of long-term home care can not necessarily be confirmed empirically. Accordingly, longitudinal or follow-up observations are needed to clarify the predict validity and usefulness of the FACL. More specifically, the type of family, based on the FACL profile, that could or could not continue to provide long-term home care should be paid particular attention. Through precise investigation and possible packaging with additional materials, the FACL itself and its use in practice should be revised.

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