

# Development and Testing of the Partnership Scale for Primary Family Caregivers Caring for Patients With Dementia

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## **Abstract**

This article reports the development and preliminary testing of a new scale named “Partnership Scale for Primary Family Caregivers Caring for Patients With Dementia” that measures the ability of primary family caregivers to establish partnerships while providing care for patients with dementia in Japan. The first draft of the scale was developed using qualitative data from interviews with five primary family caregivers; a pool of 39 items was created through a review process with dementia care experts and researchers. An exploratory factor analysis and confirmatory factor analysis were conducted with data from 261 primary family caregivers who completed the instrument. This resulted in a multidimensional scale that consists of three factors with 13 items. The suitability of the model and intraclass correlation coefficient (ICC) values (1, 1) obtained by the test–retest method satisfied statistical standards. The criterion-related validity of the scale was significantly correlated to an external reference, which was the desired outcome. However, some subscales exhibited low internal consistency, demonstrating the need for further research.

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**Keywords**

instrument development, primary family caregivers, family members, partnerships, patients with dementia, Japan

In Japan, both the aging population and the number of people diagnosed with dementia are increasing at rates exceeding government predictions (Asada, 2013). In-home care has been promoted as a way for patients to continue living in familiar surroundings (Ministry of Health, Labour, and Welfare, Dementia Policy Research Project Team, 2012). Although this policy is expected to prevent excessive increases in medical expenses for long-term care, and to improve the quality of life of patients with dementia, it may result in an increased burden for primary family caregivers.

Providing high-quality dementia care requires support and collaboration among all involved individuals, including the patient, health care providers, and family caregivers. Building partnerships is critical to establish these collaborations, and it is important that partnerships extend beyond mere consent to include respect for and sharing of experiences and knowledge (Adams & Clarke, 1999/2006). The ability to build partnerships is considered essential for any person providing care to a patient with dementia. Therefore, the instrument developed in this study focused on the ability of primary family caregivers to build partnerships that form the nucleus of support for patients with dementia.

The behavioral and psychological symptoms caused by dementia increase the burden on primary family caregivers (Onishi et al., 2003) and negatively affect their relationships with the patient (Kishimoto et al., 2013; Perren, Schmid, Herrmann, & Wettstein, 2007). In addition to the primary symptoms of impaired memory and decreased cognitive function, other behavioral and psychological symptoms manifest include hallucinations, delusions, and irritability. Family members who knew the patient before the onset of symptoms of dementia may find it difficult to cope with and accept such changes in a patient, and thus family relationships may suffer (Kimura, 2008). Moreover, behavioral and psychological symptoms may interfere with the provision of care and further increase the burden on family caregivers (Kamiya, Sakurai, Ogama, Maki, & Toba, 2014). These situations can worsen the psychological conditions of primary family caregivers (Cooper, Blanchard, Selwood, Walker, & Livingston, 2010) and lead to strained relationships (Ueda, 2000).

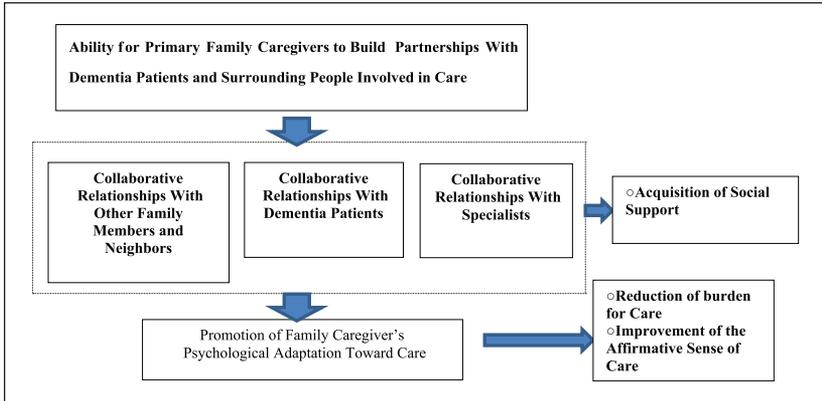
When primary family caregivers are involved in relationships with others, conflicts between primary family caregivers and other family members may arise over both major and minor issues (Scharlach, Li, & Dalvi, 2006). Yamamoto (1995) argued that the reason for these differences emerges from

the perceptions of primary family caregivers who have lived with and observed the patient for a long time versus family members who have not. The gap between these perceptions contains a greater potential for domestic misunderstanding and conflict. Conflict between primary family caregivers and other family members has been reported to strongly influence symptoms of depression and the perception that caregiving is a burden among family caregivers (Semple, 1992).

The lack of support from immediate family members also creates stress for caregivers. Based on an attitude survey of primary family caregivers in Japan and the United Kingdom, Japanese caregivers reported a higher awareness of their duty to physically support elderly parents but a low recognition of the need for collaboration among family members in providing care (Maeda, Mizushima, & Saito, 2004). This attitude is influenced by social norms, such as filial piety and traditional stereotypical female roles (Lebra, 1976). One result of such attitudes is that instead of family collaboration, women (e.g., wives and daughters-in-law) bear the central and excessive burden of care (Yamamoto, 1995). Even after the introduction of the Long-Term-Care insurance system in Japan, in which care of the elderly was supposedly transferred from female family members fulfilling domestic duties to a professional care provision system, the attitudes of family members did not change significantly; instead, the burden of care was simply delegated to society. Consequently, it appears that the contribution of family members to the care process has not been fully measured.

Relationships between primary family caregivers and community resources, including health care professionals, are also important. Even though it has been reported that good relationships improve the primary caregivers' health (Cooper et al., 2010; Redinbaugh, MacCallum, & Kiecolt-Glaser, 1995), it may be difficult to build relationships between primary family caregivers and professionals because the balance of power is not equal; family caregivers are often not involved in complex decision making (Heinrich, Neufeld, & Harrison, 2003). Because social resources may not be used by primary family caregivers, their sense of burden may increase (Maeda et al., 2004; Tanji et al., 2005). Services such as respite care to reduce the burden of caregiving, professional medical support for dementia, and family support groups are underutilized, even though these are provided by the government in Japan. This gap indicates the need to foster collaboration among caregivers, family members, and health care providers.

Nurses can support family caregivers in developing and fostering these relationships. When primary family caregivers are enabled to develop partnerships, it can lead to effective support for providing care, which can, in turn, reduce the burden of family caregiving and promote a more positive appraisal of family



**Figure 1.** Partnership of primary family caregivers caring for dementia patients and the expected ethical considerations.

(Cooper et al., 2010; Tanaka, Hyodo, & Tanaka, 2002; Zarit, Femia, Kim, & Whitlatch, 2010). Considering such care situations from the perspective of stress and coping theory (Lazarus & Folkman, 1984), fostering such partnerships with primary family caregivers amounts to an effective coping behavior and seems to engender the promotion of primary family caregivers' psychological adjustment to the provision of care (see Figure 1).

Developing these partnerships may not be easy, particularly for Japanese primary family caregivers who may have cultural issues related to collaborating with other family members or coordinating with medical professionals, and thus may lack the ability to overcome obstacles. Some qualitative studies have examined families' abilities to care for patients with dementia (Nagai, 2005) and their appropriate communication skills (Nishida & Yamada, 2007). However, there is a lack of quantitative studies describing the skills required for primary family caregivers to form good relationships with patients with dementia as well as no studies on the relationship between primary family caregivers and health care providers. Previous studies have not focused on the caregivers' abilities to build collaborative relationships, nor is there a scale to evaluate such skills. If these abilities can be comprehensively elucidated, it would enable creation of an assessment instrument to identify ways to support patients with dementia and their primary family caregivers in Japan.

## Definition of Terms

The terms used in this study are operationally defined as follows.

## *Partnership of Primary Family Caregivers Caring for Patients With Dementia*

Based on the notion that “families are a part of large higher-order systems and are made up of lower-order systems” derived from systems theory (Wright & Leahey, 2013, pp. 27-28), this study focuses on the relationship of primary family caregivers to systems both inside and outside the family. Moreover, the partnerships found in these relationships are operationally defined as cooperative relationships that enable mutual respect between primary family caregivers and relevant stakeholders (persons with dementia, other family members, professional practitioners, and neighbors) that are developed through the practice of caring for the dementia patient. Furthermore, ability to establish such a relationship is the central measurement concept of the “Partnership Scale for Primary Family Caregivers Caring for Patients With Dementia” described in this article.

### *Primary Family Caregiver*

A primary family caregiver is defined as the family member chiefly responsible for care provision of all family members caring for a patient with dementia. In addition, “family” is defined as a collective of individuals who recognize each other as family, irrespective of whether they share the same household.

## **Purpose of the Study**

This study aimed to (a) develop a scale to measure the ability of primary family caregivers to build partnerships within inside and outside of the family while caring for a family member (the patient) with dementia, with Japanese primary family caregivers as participants; and (b) test its validity and reliability.

## **Research Methodology**

### *Item Pool Development and Content Validity Testing*

Using convenience sampling, the manager of a prefectural day care facility focusing on persons with dementia who agreed to cooperate with the researcher was asked to select primary family caregivers actively involved in caring for patients with dementia. Selection focused on patients’ families and other care stakeholders with positive working relationships, and sought to

avoid bias in terms of gender or the nature of relationship to the recipient of care. After five primary family caregivers were identified and had the study described to them, verbal and written consent to participate were obtained. Semistructured interviews that lasted 60 to 90 min were conducted with the participants. The questions focused on what they attended to in their daily care practices to build collaborative and mutually respectful relationships with the patients with dementia and with the family member and others involved in providing care. The participants, three women and two men, ranged in age from 50 to 80 years. In terms of their family relationship to the recipient of care, in three cases the recipient of care was a spouse, in one case a mother-in-law, and in one case a mother. When the five interviews were completed, it was determined that the content had sufficient commonality and that data saturation had occurred. Data were collected between June 2010 and September 2010.

Data from the interviews were transcribed and analyzed according to procedures for qualitative data proposed by Kayama (2007). First, those portions of the accounts relating to the ability of the primary family caregiver to build collaborative relationships were extracted from the data obtained from the transcripts and summarized with attention to similarity to create 33 items. A further 11 items were added after review of additional literature (Fallon, Gránne, & Victor, 1993; Kitwood, 1997/2005; Nagai, 2005) to create 44 questions. Analysis of these questions resulted in the extraction of eight categories: (a) Interactions That Reassure the Patient With Dementia, (b) Coping That Matches the Patient's World, (c) Interactions That Bring Out the Elderly Patient's Strengths, (d) Comprehension and Accommodation of One's Own Situation, (e) Proactive Aspiration for Information and Knowledge, (f) Trust Formation and Role Coordination, (g) Proactive Consultation and Request, and (h) Affirmation of One's Own Opinion. After further discussion and extensive modification by doctoral students in the Division of Nursing Science in the Hiroshima University Institute of Biomedical and Health Sciences with respect to the words used, content, and connections between the categories and each item, five items were eliminated, thereby yielding a final total of 39 questions. The response format was a 5-point Likert-type scale ranging from 0 (*not at all*) to 4 (*extremely so*).

Next, as a Content Validity Index for the question items, a questionnaire was distributed to a group of nine dementia care experts, including day care service managers specializing in dementia care with 10 or more years of experience in the provision of dementia care as well as dementia care specialist nurses certified by the Japanese Society for Dementia Care. These dementia experts possessed a wealth of knowledge concerning the abilities required of primary family caregivers for providing care to patients with dementia. In

addition, approaching the data by considering various perspectives is regarded as a way to ensure the validity of results (Frick, 1995/2002). The survey asked participants to rate each item on a 4-point Likert-type scale from 1 (*not appropriate*) to 4 (*concise and appropriate*). This was based on the method proposed by Lynn (1986), wherein the percentage of experts who rated each item as 3 or more was calculated, and items that scored 78% or higher were considered appropriate. As a result, the percentage of experts that assigned a rating of three or more for all items was between 78% and 100%. The survey period was between December 2010 and January 2011. The 39 items were proposed as the preliminary Partnership Scale for Primary Family Caregivers Caring for Patients With Dementia.

### *Reliability and Validity Testing*

*Sample and setting.* Consent to participate in the study was solicited and obtained from five facilities located in Prefecture F specializing in the provision of day care for patients of dementia. Prefecture F is a regional administrative district in Japan with approximately 5 million residents, corresponding to approximately 4% of Japan's total population. Approximately 23.3% of the population were above age 65 in prefecture F in 2013, which is slightly the national average of 25.1% (Cabinet Office, 2013). The managers of the participating facilities agreed to select participants for the study. The criteria for selecting participants necessitated that they were primary family caregivers providing in-home care for patients diagnosed with dementia. Documents explaining the purpose of the study and an anonymous self-administered questionnaire were distributed to 430 individuals satisfying these criteria by the staff at the participating facilities; participants were asked to return their responses via post. In addition, with regard to the selection of primary family caregivers, each family was given the choice to select the one person who was primarily responsible for care provision.

A total of 286 responses were received (66.5% response rate), of which 261 were deemed complete and suitable for analysis. The attributes of the primary family caregivers and recipients of care are listed in Tables 1 and 2. Data of participants were devited randomized two groups for analyze. Among the primary family caregivers, the majority were female, and many respondents belonged to three-generation households. Among the recipients of care, the majority were female, and these were most commonly the mothers of the primary family caregivers. In terms of the severity of dementia among the recipients of care, many were estimated to be suffering from severe dementia. A retest was implemented after an interval of 1 week with 50 respondents from a participating facility. A 1-week interval was observed between the

**Table 1.** Characteristics of Participants (Primary Family Caregivers) Which Debited Randomized Two Groups for EFA and CFA.

Item	Number of people (%) or <i>M</i> ( <i>SD</i> )	
	Group A ( <i>n</i> = 130)	Group B ( <i>n</i> = 131)
Age	61.0 (12.5)	59.8 (10.1)
Gender		
Male	37 (28.5)	24 (18.5)
Female	93 (71.5)	106 (81.5)
Family structure		
Married couple only	35 (26.9)	38 (29.0)
Nuclear family	37 (28.5)	28 (21.4)
Three-generation household	49 (37.7)	55 (42.0)
Extended family	9 (6.9)	9 (6.9)
Care period		
Less than 6 months	8 (6.2)	8 (6.1)
6 months-1 year	10 (7.7)	11 (8.4)
1-3 years	36 (27.7)	38 (29.0)
3-5 years	29 (22.3)	30 (22.9)
5-9 years	28 (21.5)	26 (19.8)
9-12 years	10 (7.7)	8 (6.1)
12 years or more	9 (6.9)	6 (4.6)
Health conditions		
Healthy	57 (43.9)	64 (48.9)
Neither healthy nor unhealthy	36 (27.7)	31 (23.7)
Unhealthy	36 (27.7)	36 (27.4)
Users of health and medical welfare services		
Day care/day service	122 (93.8)	120 (91.6)
Short stays	39 (30.0)	32 (24.4)
Visiting care	14 (10.8)	15 (11.5)
Visiting nurse	7 (5.4)	4 (3.1)

Note. Missing values have been redacted, so the totals of some items may not add up to 100%. EFA = exploratory factor analysis; CFA = confirmatory factor analysis.

initial test and the retest was in order that responses would not be affected by changes in the medical condition and care situation of the person receiving care. In addition, by asking staff to assign code numbers to participants, and having participants return their questionnaires after marking their code number, code matching was carried out in a way that ensured anonymity. The survey period was between March 2011 and July 2011.

**Table 2.** Characteristics of Participants (Care Receivers) Which Debited Randomized Two Groups for EFA and CFA.

Item	Number of people (%) or <i>M</i> ( <i>SD</i> )	
	Group A ( <i>n</i> = 130)	Group B ( <i>n</i> = 131)
Age	83.0 (7.8)	84.03 (6.9)
Gender		
Male	40 (30.8)	37 (28.2)
Female	90 (69.2)	93 (71.0)
Relationship to primary caregiver		
Spouse	33 (25.4)	28 (21.4)
Parent	64 (49.2)	58 (44.3)
Mother-in-law	20 (15.4)	40 (30.5)
Father-in-law	3 (2.3)	3 (2.3)
Sibling	3 (2.3)	0
Other	7 (5.4)	2 (1.5)
Dementia severity		
Suspected dementia	1 (0.8)	5 (3.8)
Light dementia	5 (3.8)	11 (8.4)
Moderate dementia	45 (34.6)	34 (26.0)
Severe dementia	79 (60.8)	81 (61.8)

Note. Missing values have been redacted, so the totals of some items may not add up to 100%. EFA = exploratory factor analysis; CFA = confirmatory factor analysis.

**Measures.** The following five questionnaires were administered:

1. Short Japanese Version of the Zarit Caregiver Burden Interview (Arai, Tamiya, & Yano, 2003) is composed of two factors and eight items, on the basis of 22 items and two factors of the original version (Zarit, Reever, & Bach-Peterson, 1980); its reliability and validity has been confirmed in Japan. The factors are as follows: (a) Factor I Personal Strain: degree of negative feeling toward situations that require care and (b) Factor II Role Strain: degree to which the caregiver's social life is hindered by care. A higher score is evaluated as a greater sense of burden.
2. Caregiver Positive Appraisal Scale (Suyama, Kawano, & Kawano, 2004): Suyama et al. (2004) considered positive feelings about care to be influenced by the primary family caregiver's coping behavior and the perception of the results, and created a scale composed of 12 items with the following three factors: (a) Factor I Sense of fulfillment

- toward care situation, (b) Factor II Sense of self-growth, and (c) Factor III Sense of belonging with the elderly. A higher score is evaluated as more positive feelings toward care.
3. Short Japanese Version of the Multidimensional Scale of Perceived Social Support (Iwasa et al., 2007): Social support refers to support with an instrumental and expressive function brought about through interpersonal relationships. Iwasa et al. (2007) developed a short Japanese Version of the Multidimensional Scale of Perceived Social Support created by Zimet, Powell, Farley, Werkman, and Berkoff (1990). It is composed of seven items and the following three factors: (a) Factor I Support from family, (b) Factor II Support from significant other, and (c) Factor III Support from friends. A higher score is evaluated as receiving greater social support.
  4. Severity Evaluation Checklist for Elderly Persons at Home (Tokyo Metropolitan Institute of Gerontology & Social Welfare Division, 1996) was used to measure dementia severity. Primary family caregivers were asked to check off the presence of symptoms in the elderly person with dementia. The more symptoms checked indicated greater severity of dementia.

The preliminary Partnership Scale for Primary Family Caregivers Caring for Patients With Dementia, developed as previously described, was administered. For this survey, we accounted for issues that may affect the study if the primary family caregivers had to respond to several surveys and if the burden to answer was high, that is, responses might be missing, or there might be a high number of response errors. Therefore, of the 430 participants in study, half ( $n = 215$ ) were given the preliminary Partnership Scale, Multidimensional Scale of Perceived Social Support (Japanese Edition; Iwasa et al., 2007), and Zarit's Caregiver Burden Scale (Short Edition; Arai et al., 2003). The other half of the participants completed the Care Positivity Scale (Suyama et al., 2004) and the preliminary Partnership Scale.

### *Data Analysis*

Data were analyzed using SPSS Version 17.0 for Windows and Amos Version 21.0 (both by IBM, Armonk, NY, USA).

*Exploratory factor analysis (EFA).* For our analysis, data from 261 participants were randomly divided into two data sets using SPSS. One of these groups (Group A, 130 members) was subjected to EFA (principal factor method by correlational matrix, Varimax rotation). The number of factors was determined by

performing parallel analysis (Horn, 1965), which has been described as deriving an appropriate number of factors while taking sampling error into consideration. A factor loading value of .40 or higher was considered the standard for adoption. Furthermore, the elimination of factors with a factor load of .30 or higher (other than principal factors) enabled the careful selection of items with high discriminative power to identify the minimum number of items for the scale. This was done to select items with a specific load for each factor, and to create a model that has a factor structure wherein the connections between each factor and item have a clear and concise explanatory power (Brown, 2006).

*Confirmatory factor analysis (CFA).* A model was constructed based on the results obtained from the EFA, and a CFA (maximum likelihood method) was conducted for the other group, which did not undergo EFA (Group B, 131 members). A covariance structure analysis (maximum likelihood method) was performed by CFA using Amos. The basic model for the analysis, based on the results of EFA, was composed of three factors (“Ability for Receptive Coping,” “Proactive Consultation and Information-Seeking,” and “Trust Formation and Role Coordination”) and 14 items. In family systems (Wright & Leahey, 2013), the model can be interpreted as the ability of primary family caregivers to build partnerships within systems inside and outside of the family. In the analysis, correlations were posited with each factor. In addition, to clearly show the effect of error variables on each item, the variance of error variables only was fixed at 1. However, no restrictions were imposed on any other value estimates. The criteria used to satisfy goodness-of-fit in the CFA were a standardized root mean square residual (SRMR) of .08 or less (Albright & Park, 2009), comparative fit index (CFI), Tucker–Lewis index (TLI) of .95 or more (Hu & Bentler, 1999), and root mean square error of approximation (RMSEA) of .05 or less (Netemeyer, Bearden, & Sharma, 2003).

*Test of internal consistency and stability.* To test for internal consistency, Cronbach’s alpha coefficient (Waltz, Strickland, & Lenz, 2005) was calculated for the scale created as a result of the CFA of Group B and its subscales. Moreover, to confirm stability, after confirming the normality of the scale scores, the intraclass correlation coefficients (ICCs; Tsushima, 2007) were calculated for the 50 participants who were retested.

### *Relations to Other Scales*

Kramer (1997) stated that evaluation of the role of the caregiver (burden and gain) is a factor that defines the caregiver’s well-being in response to the influence of caregiver background, the caregiving process, and care

performance. In addition, how this care role is important in the context of coping behavior has been indicated. Therefore, in this study, the ability of the primary family caregiver to build partnerships, which has been posited as an effective form of coping based on stress coping theory, is predicted to be strongly associated with positive relationships with persons with dementia and acquiring social support from people in the network of care. These results were also hypothesized to be associated to a moderate degree with positive feelings and a sense of burden in the primary family caregiver's experience of care (Figure 1). Based on these hypotheses, Zarit's Care Burden Scale (Short Edition; Arai et al., 2003), which conforms to the predicted partnership results based on stress and coping theory (see Figure 1), as well as the Multidimensional Scale of Perceived Social Support (Japanese Edition; Iwasa et al., 2007) and the Care Positivity Scale (Suyama et al., 2004) were used to examine the convergent validity of the Partnership Scale. Spearman's correlation coefficient was calculated for the score on the Partnership Scale created from the results of factor analysis and these scales.

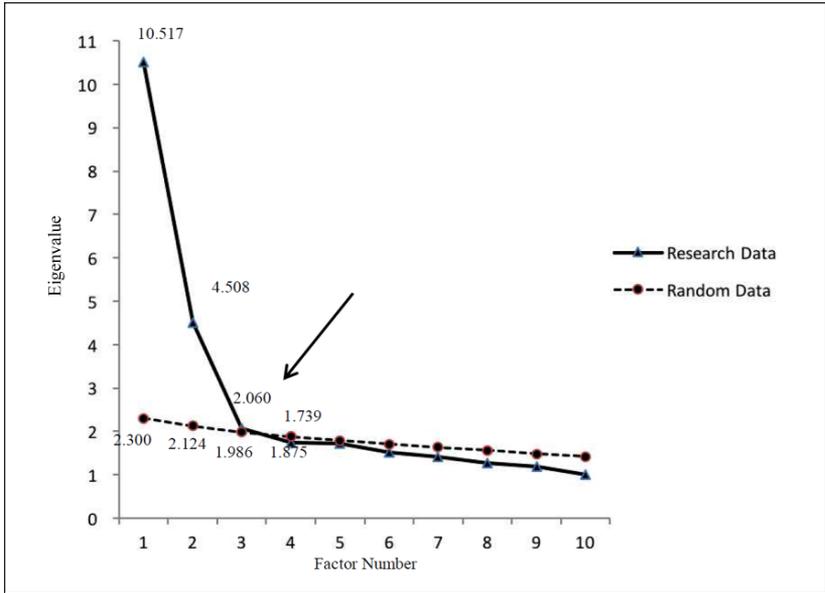
### *Ethical Considerations*

All participants were provided a written explanation about the purpose and significance of the study, the measures used to ensure anonymity and confidentiality, the management of data, and the reporting of research results at academic conferences. They were informed that participation was voluntary, and that refusal to participate would involve no penalty or loss of benefits to which the participant was otherwise entitled. The document also included contact information for the researchers. A consent to participate in the study was considered obtained from all those who responded. In addition, the plan of this study was submitted for review to the Ethical Review Board of the researchers' affiliated institution and approval was obtained (Approval Number: 1023).

## **Results**

### *EFA*

EFA proceeded as follows: (a) factor analysis for all items, (b) determining the number of factors by parallel analysis, and (c) factor analysis following determination of the number of factors. First, as the result of EFA (principal factor method by correlational matrix, Varimax rotation) of 39 items on the Partnership Scale, 10 factors were extracted with eigenvalues of one or greater, and the total



**Figure 2.** Results of parallel analysis using eigenvalues from research and random data ( $n = 130$ ).

**Table 3.** Results of Parallel Analysis Using Eigenvalues From Research and Random Data.

Factor number	Eigenvalue	
	Research data ( $n = 130$ )	Random data ( $n = 130$ )
1	10.517	2.300
2	4.508	2.124
3	<b>2.060</b>	<b>1.986</b>
4	1.739	1.875
5	1.721	1.786
6	1.521	1.074
7	1.406	1.630
8	1.270	1.557
9	1.179	1.482
10	1.012	1.421

Note. Eigenvalues of more than 10 factors have been omitted.

**Table 4.** Results of Exploratory Factor Analysis (n = 130).

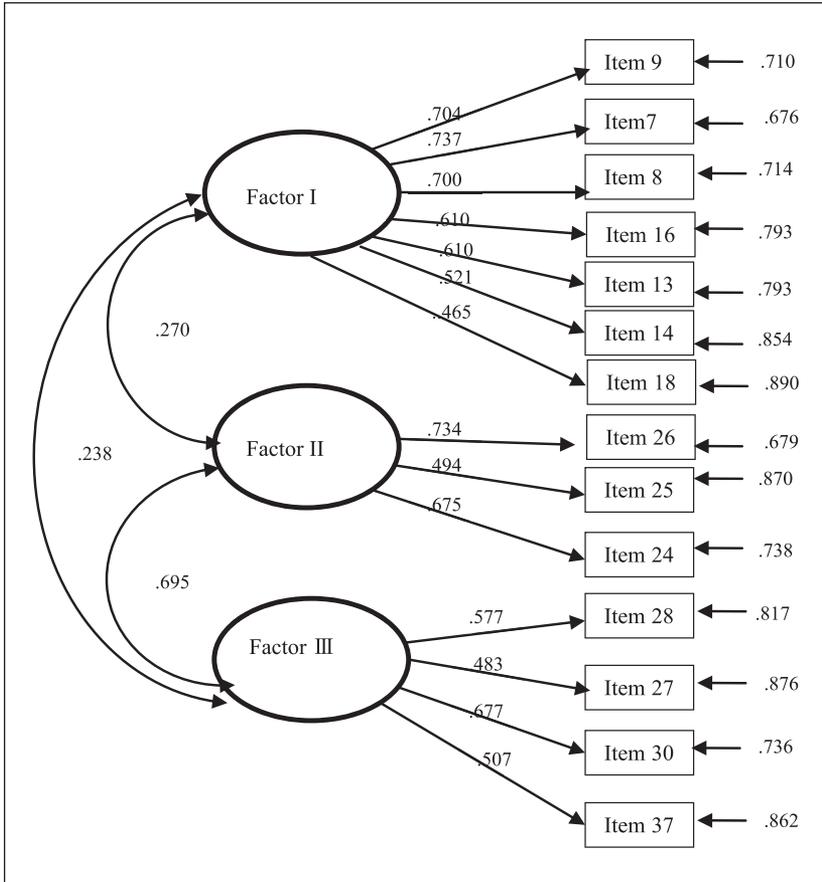
Question item	Factor loading			Communalities
	Factor I	Factor II	Factor III	
<b>Factor I (six items): Ability for Receptive Coping</b>				
9. I adapt my support to the condition of the person receiving care on that particular day.	<b>.743</b>	.196	-.001	.591
16. I recognize when the person receiving care is able to do something and praise him or her.	<b>.743</b>	.003	.109	.563
8. When necessary, I switch scenes (such as changing the topic or the person speaking, etc.), and avoid confusion and excitement of the person receiving care.	<b>.688</b>	.178	.002	.505
7. Even with clumsy behavior, I value the feelings of the person receiving care and watch over him or her as much as possible.	<b>.659</b>	.127	-.024	.451
18. I provide positive stimulus to the person receiving care by taking advantage of things he or she enjoys.	<b>.639</b>	.067	.178	.444
14. I gauge the feelings of the person receiving care by his or her facial expressions and attitude.	<b>.638</b>	.212	.067	.457
13. Even if the person receiving care behaves incoherently, I do not scold him or her in a loud voice.	<b>.598</b>	-.014	.095	.366
<b>Factor II (three items): Proactive Consultation and Information-Seeking</b>				
26. I do not hesitate to ask questions to doctors and nurses about things I do not understand, such as treatment objectives.	.152	<b>.803</b>	.080	.674
24. I actively investigate available societal resources (such as services and hospitals where consultation can be sought).	.170	<b>.628</b>	.148	.445
25. I seek advice from people with care experience.	.086	<b>.509</b>	.196	.305
<b>Factor III (four items): Trust Formation and Role Coordination</b>				
28. I communicate and share information about the person receiving care to the family members who are not directly involved in the care.	.049	.110	<b>.690</b>	.490
30. The role of care is shared among family members.	.000	<b>.413</b>	<b>.610</b>	.543
27. I seek the opinions of other family members and match the care objectives (directions) accordingly.	.006	.032	<b>.498</b>	.250
37. I clearly express my opinions regarding care to surrounding family members.	.182	.127	<b>.465</b>	.266
Eigenvalues	3.278	1.633	1.437	
% of variance after rotation	23.416	11.667	10.265	
% of total variance accounted for	45.348			

Note: Factor loading > .40 are in boldface.

variance explained by these factors was 58.7%. The Kaiser–Meyer–Olkin measure was .82, which met Kaiser’s (1974) measure of sampling adequacy. The Bartlett sphericity test was significant ( $p < .001$ ). Second, parallel analysis (Horn, 1965) was carried out. The results found that the eigenvalues of the random correlation matrix were larger up to the fourth factor, while those of the correlation matrix of the participant data at the third factor exceeded the eigenvalues of random correlation matrix (see Figure 2, Table 3). Therefore, the number of factors was determined to be three. Because a determination of interpretability required that the number of necessary participants should be 20 times the number of factors (Arrindel & Van der Ende, 1985), it was determined that it is possible to undertake the analysis. Table 4 shows the results of an EFA (principal factor method by correlational matrix, Varimax rotation) conducted on the preliminary Partnership Scale. The Kaiser–Meyer–Olkin measure was .78, and it met Kaiser’s measure of sampling adequacy. The Bartlett sphericity test was significant ( $p < .001$ ). In the process of factor analysis, 12 items with factor loadings of less than .40 were eliminated. In addition, 13 further items with factor loadings of .30 and above on factors other than the principal factors were eliminated. Item 30 showed a loading of .30 or higher for Factor II as well. However, the characteristics of partnerships also include voluntary involvement and participation in the respective roles of each stakeholder as distributed and shared abilities (Gottlieb, Feely, & Dalton, 2006). As Item 30 conformed to such a characteristic, it was therefore determined to be an important item and was not eliminated prior to analysis. Finally, 14 items with three factors were adopted. The three factors explained 45.3% of the total variance. Factor I was named “Ability for Receptive Coping,” Factor II “Proactive Consultation and Information-Seeking,” and Factor III “Trust Formation and Role Coordination.”

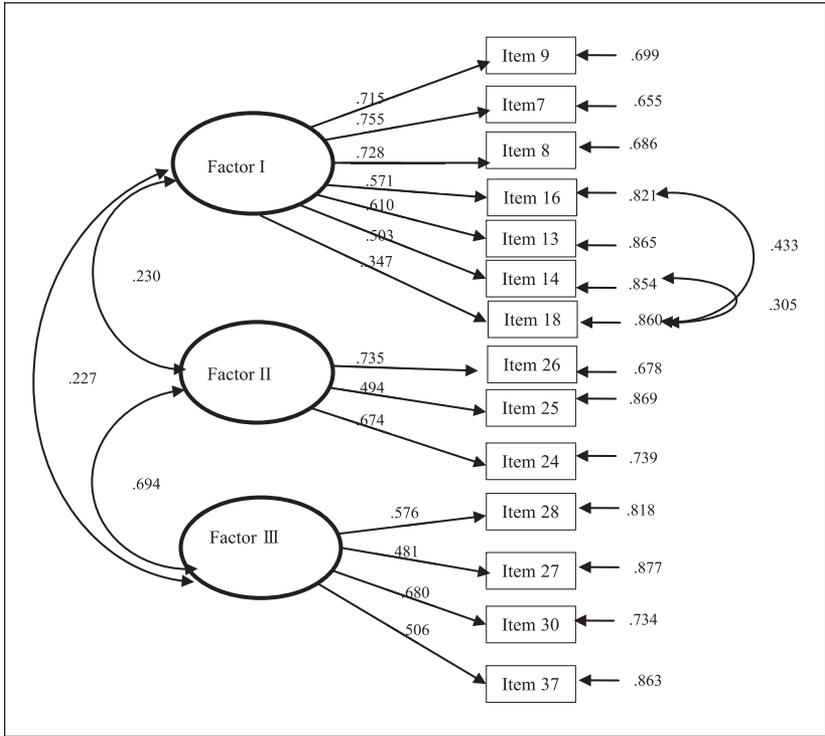
## CFA

Figures 3 to 5 show the results of the CFA (maximum likelihood method). As a minimum of 100 to 200 participants were required to conduct the CFA (Bentler & Chou, 1987), it was determined that the analysis could be undertaken. The following three models were considered. First, based on the result of EFA, we considered Model A, which was calibrated with the 14 items and three factors of the Partnership Scale with correlations set between each factor (Figure 3). However, with a CFI and TLI of .95 or above (Hu & Bentler, 1999) and RMSEA equal to or less than .05 (Netemeyer et al., 2003), the goodness-of-fit criteria were not satisfied for Model A. Thus, after checking the Amos modification indices, we created and considered Model B, for which covariance was set between error



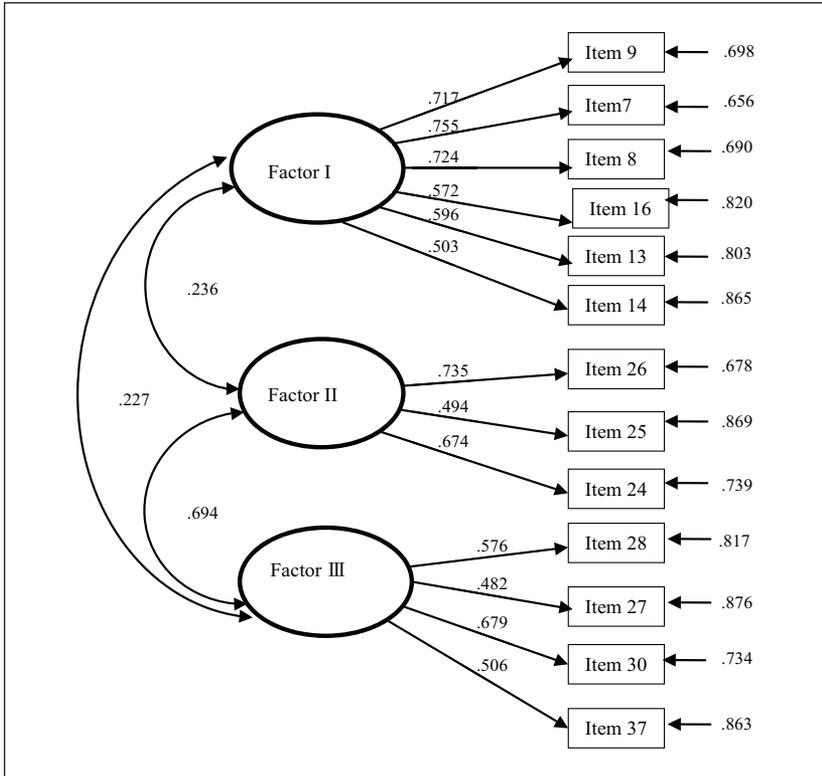
**Figure 3.** Model A completely standardized parameter estimates from the three-factor CFA model of 14 items ( $n = 131$ ).  
 Note.  $\chi^2(74) = 113.845, p = .002, SRMR = .073, RMSEA = .064$  (90% CI = [.039, .087]) TLI = .885, CFI = .906. CFA = confirmatory factor analysis; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation; CI = confidence interval; TLI = Tucker–Lewis index; CFI = comparative fit index.

variances for Items 18 and 16 and between Items 18 and 14 (Figure 4). The measurement content of these items was considered to have similarities in terms of active involvement to elicit the capabilities of dementia patients. As a result of setting covariance between error variances, goodness-of-fit criteria were satisfied for all indices. In addition, as a result of comparing the chi-square ( $\chi^2$ ) values for Model A and Model B with a chi-square test,



**Figure 4.** Model B completely standardized parameter estimates from the three-factor CFA model of 14 items correlated error variables ( $n = 131$ ).  
 Note.  $\chi^2(72) = 84.317, p = .152, SRMR = .071, RMSEA = .036$  (90% CI = [.00, .065]) TLI = .963, CFI = .971. CFA = confirmatory factor analysis; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation; CI = confidence interval; TLI = Tucker–Lewis index; CFI = comparative fit index.

the chi-square value for Model B was significantly smaller than that for Model A, and it was shown that the model had adequate goodness-of-fit ( $p = .021$ ). However, the standardized path coefficient for Item 18 from Factor I (Ability for Receptive Coping) at .35 was consistently low. Moreover, Item 18 was seen to covary between error variables with respect to other items. Therefore, we also considered Model C in which Item 18 was eliminated (Figure 5). Consequently, the goodness-of-fit criteria for Model C were all shown to be better than that for Model B. Accordingly, 13 items and three factors in Model C were adopted as a Partnership Scale and used for subsequent analysis.



**Figure 5.** Model C completely standardized parameter estimates from the three-factor CFA model of 13 items ( $n = 131$ ).

Note.  $\chi^2(62) = 70.628$ ,  $p = .212$ , SRMR = .064, RMSEA = .033 (90% CI = [.000, .065])  
 TLI = .971, CFI = .977. CFA = confirmatory factor analysis; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation; CI = confidence interval; TLI = Tucker–Lewis index; CFI = comparative fit index.

With regard to the respective portions of the Model C, the parameters of each factor and item were significant ( $p < .001$ ) showing coefficients between .48 and .75. In addition, a significant correlation was found between Factor II (Proactive Consultation and Information-Seeking) and Factor III (Trust Composition and Role Coordination;  $p < .001$ ). However, correlations between Factor I (Ability for Receptive Coping) and Factors II and III were not found to be significant ( $p = .050$ ,  $p = .070$ ).

### *Test of Internal Consistency and Stability*

Cronbach's alpha coefficient for the Partnership Scale was .78 for all 13 items, specifically .84 for Factor I, .71 for Factor II, and .67 for Factor III. Furthermore, the normality of the results of the 13 items on the Partnership Scale was confirmed with the Shapiro–Wilk test resulting in  $p = .067$ . Consequently, ICCs were calculated for the 50 participants who participated in the retest. The ICC (1, 1) for the total score on the 13 items was .80, .83 for Factor I, .61 for Factor II, and .68 for Factor III.

### *Relations to Other Scales*

The Cronbach's alpha coefficients for each of the scales calibrated as an external reference were .90 for the Japanese Version of the Social Support Scale (Iwasa et al., 2007), .89 for the Short Version of the Zarit Caregiver Burden Interview (Arai et al., 2003), and .92 for the Caregiver Positive Appraisal Scale (Suyama et al., 2004). Table 4 shows the correlation coefficients for these scales and the Partnership Scale scores. The score of the Partnership Scale for Primary Family Caregivers Caring for Patients With Dementia was confirmed to have a positive correlation with the Social Support score, a negative correlation with the Sense of Caregiver Burden score, and a positive correlation with the Caregiver Positive Appraisal score ( $p < .01$ ,  $p < .01$ , and  $p < .01$ , respectively; see Table 5).

## **Discussion**

The Partnership Scale for Primary Family Caregivers Caring for Patients With Dementia was considered to have a certain content validity by virtue of the fact that after the creation of the item pool, it was assessed to be appropriate by expert review. Furthermore, the goodness-of-fit for the three-factor 13-item model finally adopted was confirmed by CFA. Therefore, there was considered to be little inconsistency between the factor structure of the scale and actual data. While the goodness-of-fit of the three-factor 14-item model that set covariance between the error variances also satisfied statistical criteria, the items observed by covariance were considered to have similarities in terms of active involvement to elicit the capabilities of dementia patients. This was thought to suggest the possibility that the variety of involvements that were extracted and associated with receptive coping suggested the categorization by similarity in order when drafting the Partnership Scale. Therefore, the elimination of Item 18, which had weak links to the

**Table 5.** Correlation Between Scale to Assess Partnership-Building Ability of Primary Family Caregivers of Patients With Dementia in Japan and Other Scales.

	Total score	Factor I	Factor II	Factor III
Social Support (Total Score)	.488**	.194*	.375**	.542**
Factor I (Support of Family)	.420**	.178	.276**	.473**
Factor II (Support of Significant Other)	.432**	.187*	.307**	.489**
Factor III (Support of Friends)	.457**	.149	.437**	.465**
Sense of Care Burden (Total Score)	-.334**	-.241**	-.219**	-.226**
Factor I (Personal Strain)	-.274**	-.062	-.222**	-.303**
Factor II (Role Strain)	-.348*	-.369**	-.166*	-.128
Care Positivity (Total Score)	.370**	.333**	.196*	.176
Factor I (Sense of Fulfillment)	.294*	.222*	.152	.138
Factor II (Sense of Self-Growth)	.361**	.376**	.181	.168
Factor III (Sense of Unity with the Elderly)	.356**	.364**	.173	.167

Note. Social Support = Short Japanese Version of the Multidimensional Scale of Perceived Social Support (Iwasa et al., 2007); Sense of Care Burden = Short Japanese Version of the Zarit Caregiver Burden Interview (Arai, Tamiya, & Yano, 2003); Care Positivity = Caregiver Positive Appraisal Scale (Suyama, Kawano, & Kawano, 2004).

Spearman's correlation coefficient: \* $p < .05$ . \*\* $p < .01$ .

main factors and was seen to share covariance between error variances, was considered to have led to the careful selection of unique question items that did not overlap the measurement content of other scale items. The factor structure of the three factors (“Ability for Receptive Coping,” “Proactive Consultation and Information-Seeking,” and “Trust Formation and Role Coordination”), which was obtained as a result of the 13-item model and based on the notion of family systems (Wright & Leahey, 2013), suggests the possibility of interpreting the ability of primary family caregivers of persons with dementia to build partnerships in care and in systems inside and outside of the family, including with dementia patients.

In terms of the evaluation of each part of the 13 items with three-factor model, while all factor and item coefficients were found to be significant, the correlation between Factor I (Ability for Receptive Coping) and the other factors was not significant. In other words, it is thought that receptive coping ability is in a different dimension than other factors and that this is a multidimensional scale. It was presumed that this may have resulted from the fact that primary family caregivers' abilities to establish partnerships with patients with dementia differed in character from their ability to establish partnerships with other people involved in dementia care. Gottlieb et al. (2006) indicated the possibility of establishing partnerships even with those with decreased cognitive function and limited communication skills. However, the authors state that this differs considerably in character from establishing partnerships

with those who can adequately communicate. From the above results, it seems that the factor structure of the Partnership Scale, along with the relationships between each item and the relationships between factors, is both theoretically open to interpretation and a valid fit with real-world data. Nonetheless, this study was conducted at facilities that agreed to cooperate with the researchers, and participants were selected using convenience sampling. Approximately 60% of participants were observed to have been caring for patients who identified as being in a severe state of dementia. Accordingly, it is possible that the results of this study may have been biased due to participant characteristics. In future, based on the results of this study, the sample should be recruited using either quota techniques or random sampling to obtain the necessary larger sample considering the statistical power for confirmation of the goodness-of-fit of the factor structure.

Cronbach's alpha coefficient was calculated as a reliability check for all items on the scale and for each subscale to verify the scale's internal consistency. As a result, the Cronbach's alpha coefficient for the entire scale is .78, confirming that it maintained a certain level of internal consistency. However, Cronbach's alpha coefficient for the items related to the "Trust Formation and Role Coordination" subscale, which was aimed at families, was .67, consistently low. One possible reason for this is that "Trust Formation and Role Coordination" extracted a wide range of approaches, such as sharing information, consensus building, and role allocation, to measure a family's cooperation toward care. We presume that the internal consistency dropped because all of these approaches are being measured with a minimal number of items. We considered adding items such as "Verbally Expressing Gratitude for Collaboration" to raise the internal consistency. The expression of positive emotion for specific actions is the most powerful drive for behavioral change (Falloon, Laporta, Fadden, & Graham-Hole, 1993/2000). The expression of gratitude for collaboration may increase mutually desirable behavioral patterns, and may be an effective skill for strengthening domestic collaboration. However, this will be an issue for future research as it was not possible to continue further analysis of this topic in this study.

The scale's stability was confirmed by the test-retest method, and the ICC (1, 1) was found to be .80 for the entire scale, and .61 to .83 for each of the subscale scores. According to Fleiss's (1986) standards, scale reliability is evaluated as excellent if the ICC is greater than .75, and fair to good if between .40 and .75. On this basis, we confirmed that scale stability was mostly favorable.

Regarding the relationship of the Partnership Scale with external criteria, the expected results were obtained. First, the fact that there was a correlation between the scores on the Partnership Scale and the Social Support Scale

could indicate that primary family caregivers' abilities to establish partnerships is connected to their ability to receive social support. In addition, a significant, although slightly weaker correlation was also found between primary family caregivers' abilities to establish partnerships and their knowledge with respect to care situations, namely, the sense of care burden and positive feelings about care. Sense of care burden and positive feelings about care have been reported to be influenced by multiple factors, including economic conditions and the situation of the care receiver (Kajiwara & Ykoyama, 2007; Kramer, 1997; Suyama et al., 2004). It was considered that such entanglements with other factors may have affected the results. As described above, the convergent validity of this scale is demonstrated by the fact that, as hypothesized, a significant association was seen to exist between the Partnership Scale and external factors.

Finally, we will discuss the methods of analysis used in this study. In this study, when drafting the Partnership Scale, CFA (maximum likelihood method) was conducted in addition to EFA (principal factor method by correlational matrix, Varimax rotation). Although there are several factor estimation methods within factor analysis, the principal factor method and maximum likelihood method have been widely used. In addition, of these, the maximum likelihood method is highly precise (Brown, 2006). However, in this study, the maximum likelihood method became unsuitable as a solution at the stage of EFA when all items were entered. This was presumably because the model was not sufficiently sophisticated at the draft stage of the Partnership Scale and that there were strong correlations among several items. Therefore, we proceeded with analysis by using the principal factor method (by correlational matrix), which enabled us to seek a solution. The fact that there were some differences in the sequence of the size of estimated values for CFA as well as in factor loads for the exploratory analysis for each item appears to be an effect of using different factor estimation methods. The number of factors was determined to be three using parallel analysis, and because it was possible to obtain a degree of fit for statistical tolerance in the results of CFA (maximum likelihood method) once items were eliminated, it is thought that the selection of scale items had been appropriately conducted.

In addition, in the process of these factor analyses, there were many items that were deleted from the draft Partnership Scale for statistical reasons. The majority of these were items relating to receptive coping toward dementia patients, which is conceivably due to the fact that many individual coping responses were extracted as individual items. As a result, the scale that was finally adopted had fewer items, and even slight modifications had a major effect on goodness-of-fit. Accordingly, regarding the investigation of

subscale items that are considered necessary for improving the reliability of future scales, it was shown that there is a need to select and add items carefully to improve the validity of factor structure.

### *Implications for Practice*

The Partnership Scale for Primary Family Caregivers Caring for Patients With Dementia comprehensively reflects the ability of primary family caregivers caring for patients with dementia to create collaborative relationships with other people involved in dementia care, including the patients themselves. The content of the scale includes “Ability for Receptive Coping” with patients, “Proactive Consultation and Information-Seeking” with specialists, and “Trust Composition and Role Coordination” with families. Abilities that vary in target and character have been identified.

In “Ability for Receptive Coping,” receptive coping was identified, which included behaviors related to respecting and protecting the patient’s will, or making environmental adjustments to keep the patient’s behavioral and psychological condition from worsening. This Ability for Receptive Coping is universally necessary for primary family caregivers in building partnerships with patients. These caregiving skills are important in maintaining positive interactions with patients with dementia (Kitwood, 1997/2005). In “Proactive Consultation and Information-Seeking,” the attitude of actively cooperating with specialists was identified. In “Trust Composition and Role Coordination,” the primary family caregiver’s proactive attitude toward sharing information and allocating roles related to the patient with dementia, mainly within the family, was identified. In Japan, where stem-family households are decreasing and family structures are diversifying, the ability of primary family caregivers to create supportive connections that involve the extended family will become even more important. Furthermore, a partnership formed by primary family caregivers who attend to patients with dementia based on these three factors corresponds to the risk factors in care, including the patient’s symptoms, domestic conflict, and lack of professional support (Zarit et al., 2010). Therefore, while this scale may have a small number of items, we believe it accurately measures the ability of primary family caregivers to form partnerships that are necessary for patients with dementia and primary caregivers to exist in a state of well-being together. In addition, this scale measures the ability of primary family caregivers to establish relationships, thereby enabling interpretation of results based on three factors. The measurement results of this scale indicate a concrete direction for family support.

In addition, this scale was developed with the aim of measuring the ability of primary family caregivers to establish necessary partnerships when caring

for patients with dementia. Improvement of participants' abilities was regarded as an important outcome when investigating support for families. In previous studies, outcomes of support programs for primary family caregivers of patients with dementia were determined using sense of care burden, depressive symptoms, and symptoms of dementia (Ostwald, Hepburn, Caron, Burns, & Mantell, 1999; Steaven et al., 2006). These indices, in terms of stress and coping theory (Lazarus & Folkman, 1984), demonstrate the effect of coping and require the evaluation using a long-term perspective. Supplementing these with the additional outcome of primary family caregivers' abilities to establish partnerships as a coping behavior augments the possibility of conducting a more sensitive evaluation of primary family caregiver support.

However, one point that must be kept in mind during evaluation is that primary family caregivers' abilities to establish partnerships will also be affected by other factors. From the results of this study, it is possible to confirm the impact on each item from error variances in CFA. Accordingly, when using this scale to assess primary family caregivers' abilities to establish partnerships, it is also necessary to collect information on environmental aspects that are likely to affect its power and use this scale when conducting assessment and support. Considering the factors that have such impacts represents a future challenge.

## **Conclusion**

This psychometric study developed the Partnership Scale for Primary Family Caregivers Caring for Patients With Dementia that comprehensively measures the ability of primary family caregivers in Japan to establish partnerships when caring for patients with dementia. This study focused on partnerships built in the provision of care by primary family caregivers who care for dementia patients in an attempt to develop a scale that was able to comprehensively measure the strength to build partnerships of primary family caregivers caring for persons with dementia in Japan. The scale was made up of three factors ("Ability for Receptive Coping," "Proactive Consultation and Information-Seeking," and "Trust Formation and Role Coordination") and 13 items, and it was revealed to be multidimensional in nature. In addition, scores on this scale were found to have a significant association with primary family caregivers' awareness of care and acquisition of social support. Accordingly, a primary family caregiver's ability to establish partnerships was considered important for the well-being of both primary family caregivers and patients with dementia.

A limitation is that the study recruited participants using convenience sampling techniques. The internal consistency of some of the subscales was

low, which sets the stage for further testing. In the future, it will be necessary to add subscale items based on the results of this study to secure new participants in consideration of statistical detectability and to ensure the reliability and validity of factor structure. Moreover, investigating reactivity and sensitivity will also be ongoing challenges.

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### References

- Adams, T., & Clarke, C. L. (2006). *Dementia care: Developing partnerships in practice* (H. Kamigori & T. Takehana, Trans.). Tokyo: Japan Nursing Association. (Original work published 1999)
- Albright, J. J., & Park, H. M. (2009). *Confirmatory factor analysis using Amos, LISREL, Mplus, and SAS/STAT CALIS*. Bloomington: Indiana University.
- Arai, Y., Tamiya, N., & Yano, E. (2003). Zarit kaigohutankansyakudo nihongoban no tanshukuban (J-ZBI\_8) no sakusei.sono sinraisei to datousei ni kansuru kentou [The short version of the Japanese version of the Zarit Caregiver Burden Interview (J-ZBI\_8): Its reliability and validity]. *The Japan Geriatrics Society, 40*, 497-503. Retrieved from <http://www.jpn-geriat-soc.or.jp/publications/journal/>
- Arrindel, W. A., & Van der Ende, J. (1985). An empirical test of the utility of the observations-to-variable-ratio in factor and components analysis. *Applied Psychological Measurement, 9*, 165-178. doi:10.1177/014662168500900205
- Asada, T. (2013). *Toshibu ni okeru ninchisyuu yuubyouritu to ninchisyuu no seikatukinouno eno taiou* [Dementia prevalence in urban areas and countermeasures for vital function disorders of dementia] (Kouseiroudou kagakukenkyuho jyokininchisyuu taisaku sougoukennyuujigyuu houkokusyo [Health and Labour Sciences Research Grant, Dementia Countermeasures General Research Project Report]). Retrieved from [www.tsukuba-psychiatry.com/wp-content/uploads/2013/06/H24Report\\_Part1.pdf](http://www.tsukuba-psychiatry.com/wp-content/uploads/2013/06/H24Report_Part1.pdf)
- Bentler, P. M., & Chou, C.-P. (1987). Practical issues in structural modeling. *Sociological Methods and Research, 16*(1), 78-117. doi:10.1177/0049124187016001004
- Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York, NY: Guilford Press.
- Cabinet Office. (2013). *2013 edition aging society report*. Retrieved from [http://www8.cao.go.jp/kourei/whitepaper/w-2013/zenbun/25pdf\\_index.html](http://www8.cao.go.jp/kourei/whitepaper/w-2013/zenbun/25pdf_index.html)

- Cooper, C., Blanchard, M., Selwood, A., Walker, Z., & Livingston, G. (2010). Family carers' distress and abusive behavior: Longitudinal study. *The British Journal of Psychiatry, 196*, 480-485. doi:10.1192/bjp.bp.109.071811
- Falloon, I. R. H., Laporta, M., Fadden, G., & Graham-Hole, V. (2000). *Managing Stress in Families: Cognitive and Behavioural strategies for enhancing coping skills* (Strategies for Mental Health) (H. Shiraiishi & R. Sekiguchi, Trans.). Tokyo, Japan: Kongo Shuppan. (Original work published 1993)
- Fleiss, J. L. (1986). *The design and analysis of clinical experiments*. New York, NY: John Wiley.
- Frick, U. (2002). *An introduction to qualitative research* (H. Oda, N. Yamamoto, T. Kasuga, & N. Miyaji, Trans.). Tokyo, Japan: Syunjyusya. (Original work published 1995)
- Gottlieb, L. N., Feely, N., & Dalton, C. (2006). *The collaborative partnership approach to care: A delicate balance*. Toronto, Ontario: Elsevier Canada.
- Heinrich, M., Neufeld, A., & Harrison, M. J. (2003). Seeking support: Caregiver strategies for interacting with health personnel. *Canadian Journal of Nursing Research, 35*(4), 38-56.
- Horn, J. L. (1965). A rationale and test of the number of factors in factor analysis. *Psychometrika, 30*, 179-185. doi:10.1007/BF02289447
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55. doi:10.1080/10705519909540118
- Iwasa, H., Gondo, Y., Masui, Y., Inagaki, H., Kawai, C., Otsuka, R., . . . Suzuki, T. (2007). Nihongo ban sōsyarusapōtosyakudo no shinraisei narabini datousei [Reliability and validity of the "Japanese Version of the Multidimensional Scale of Perceived Social Support"]. *Kousei no shihyou. Journal of Health and Welfare Statistics, 54*(6), 26-33. (In Japanese)
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39*, 31-36. doi:10.1007/BF02291575
- Kajiwara, K., & Yokoyama, M. (2007). Ninchisyou koureisha wo kaigo suru kazoku no kaigokezokuiyoku no youin ni kansuru kenkyuu [Research on the factors of the desire of families to continue caring for elderly persons with dementia]. *The Japanese Society for Dementia Care, 6*, 38-46. Retrieved from <http://www.chihoucare.org/>
- Kamiya, M., Sakurai, T., Ogama, N., Maki, Y., & Toba, K. (2014). Factors associated with increased caregivers' burden in several cognitive stages of Alzheimer's disease. *Geriatrics & Gerontology International, 14*(2), 45-55. doi:10.1111/ggi.12260
- Kayama, M. (2007). *Situteki kenkyuu jissenn note* [Qualitative study practice note]. Tokyo, Japan: Igakusyoin.
- Kimura, K. (2008). Ninchisyou koureisya no kazokukaigosya no kunou-sindanzengo ni okeru tsuma no kunou [The distress of family caregivers of elderly patients with dementia: Distress of patients' wife before and after the diagnosis]. *The Japanese Journal of Health Science Research, 12*, 65-70.

- Kishimoto, Y., Terada, S., Takeda, N., Oshima, E., Honda, H., Yoshida, H., . . . Uchitomi, Y. (2013). Abuse of people with cognitive impairment by family caregivers in Japan (a cross-sectional study). *Psychiatry Research, 209*, 699-704. doi:10.1016/j.psychres.2013.01.025
- Kitwood, T. M. Y. (2005). *Dementia reconsidered: The person comes first* (S. Takahashi, Trans.). Tokyo, Japan: Tsutsui Shobo. (Original work published 1997)
- Kramer, B. J. (1997). Gain in the caregiving experience: Where are we? What next? *The Gerontologist, 37*, 218-232. doi:10.1093/geront/37.2.218
- Lazarus, R. S., & Folkman, S. (1984). *Stress appraisal and coping*. New York, NY: Springer.
- Lebra, S. T. (1976). *Japanese patterns of behavior*. Honolulu: University of Hawaii Press.
- Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research, 35*, 382-386.
- Maeda, N., Mizushima, Y., & Saito, Y. (2004). Zaitaku chihousei koureisya no kaigo-sya no nayami to kibousuru sien no nichieihikaku [A comparative study between Japan and England on problems and support needs of the caregivers of elderly people with dementia at home]. *Journal of Japan Academy of Home Health Care, 7*(2), 34-42. Available from <http://www.jahhc.com/>
- Ministry of Health, Labour, and Welfare, Dementia Countermeasures Research Project Team. (2012). *On the orientation of future dementia countermeasures*. Retrieved from <http://www.mhlw.go.jp/topics/kaigo/dementia/houkousei.html>
- Nagai, M. (2005). Ninchisyou koureisya no kazokukaigoryoku hyouka to sono kanren youin [Measuring caregiving appraisal of caregivers for elderly with dementia]. *Journal of Japan Academy of Gerontological Nursing, 10*(1), 34-40. Available from <http://www.rounenkango.com/>
- Netemeyer, R. G., Bearden, W. O., & Sharma, S. (2003). *Scaling procedures: Issues and applications* (1st ed.). Thousand Oaks, CA: SAGE.
- Nishida, K., & Yamada, K. (2007). Kazokukaigosya no Comyunicêsyon skiru to sono kanrenyouin [Communication skills of family caregivers vis-à-vis elderly and related factors]. *Japanese Journal of Geriatric Psychiatry, 18*, 531-539. Available from <http://www.rounen.org/>
- Onishi, J., Umegaki, H., Suzuki, Y., Nakamura, A., Endo, H., & Iguchi, A. (2003). Chihou no koudou · shinri syoujyou oyobi kaigokankyou no kaigohutan ni ataeru eikyô [Impact of behavioral and psychological symptoms of dementia (BPSD) and cared environment on caregiver burden]. *Japanese Psychogeriatric Society, 14*, 465-473. Available from <http://www.rounen.org/>
- Ostwald, S. K., Hepburn, K. W., Caron, W., Burns, T., & Mantell, R. (1999). Reducing caregiver burden: A randomized psychoeducational intervention for caregivers of persons with dementia. *The Gerontologist, 39*, 299-309. doi:10.1093/geront/39.3.299
- Perren, S., Schmid, R., Herrmann, S., & Wettstein, A. (2007). The impact of attachment on dementia-related problem behavior and spousal caregivers' well-being. *Attachment & Human Development, 9*, 163-178. doi:10.1080/14616730701349630

- Redinbaugh, E. M., MacCallum, R. C., & Kiecolt-Glaser, J. K. (1995). Recurrent syndromal depression in caregivers. *Psychology and Aging, 10*, 358-368. doi:10.1037/0882-7974.10.3.358
- Scharlach, A., Li, W., & Dalvi, T. B. (2006). Family conflict as a mediator of caregiver strain. *Family Relations, 55*, 625-635. doi:10.1111/j.1741-3729.2006.00431.x
- Sample, S. J. (1992). Conflict in Alzheimer's caregiving families: Its dimensions and consequences. *The Gerontologist, 32*, 648-655. doi:10.1093/geront/32.5.648
- Steaven, B. H., Burgio, L., Burns, R., Coon, D., Czaja, S. J., Gallagher-Thompson, D., . . . Zahang, S. (2006). Enhancing the quality of life of dementia caregivers from different ethnic or racial groups: A randomized controlled trial. *Annals of Internal Medicine, 145*, 727-738. doi:10.7326/0003-4819-145-10-200611210-00005
- Suyama, K. S., Kawano, R., & Kawano, Y. (2004). Kazokukaigosya no kaigokouteikan no keisei ni kansuru youinbunseki [Factor analysis on the formation of positive appraisal of family caregivers]. *Japanese Journal of Gerontology, 25*, 461-470. Available from <http://www.rounenshakai.org/>
- Tanaka, T. H., Hyodo, Y., & Tanaka, K. (2002). Zaitakukaigosya no sôsyaru sapôto nettowâku no kinou-kazoku · yuujin · kinjyo · senmonsuyoku ni kansuru kentou [The function of the social support network for caregivers: Family, friends, neighbors, and professionals]. *The Japanese Journal of Social Psychology, 18*(1), 39-50. Retrieved from <http://www.socialpsychology.jp/journal/index.html>
- Tanji, H., Otsuki, M., Matsui, T., Maruyama, M., Nemoto, M., Naoki, T., . . . Sasaki, H. (2005). Dementia caregivers' burdens and use of public services. *Geriatrics & Gerontology International, 5*(2), 94-98. doi:10.1111/j.1447-0594.2005.00274.x
- Tokyo Metropolitan Institute of Gerontology & Social Welfare Division. (1996). *Family care of elderly persons and care service needs*. Tokyo, Japan: Koseikan.
- Tsushima, E. (2007). *Medical data analysis learned with SPSS*. Tokyo, Japan: Tokyo Toshô.
- Ueda, T. (2000). Zaitakuyoukaigokoureisya no kazokukaigosya ni yoru hutekisetusyoguu no jittai to sono haikai [Inadequate care by family caregiver of frail elderly living at home]. *Japanese Journal of Public Health, 47*, 264-274. Retrieved from <http://www.jsph.jp/gakkaishi.html>
- Waltz, C. F., Strickland, O. L., & Lenz, E. R. (2005). *Measurement in nursing and health research* (3rd ed.). New York, NY: Springer.
- Wright, L. M., & Leahey, M. (2013). *Nurses and families: A guide to family assessment and intervention* (6th ed.). Philadelphia, PA: F.A. Davis.
- Yamamoto, N. (1995). Chihouroujin no kazokukaigo ni kansuru kenkyuu.yome oyobi musume kaigosya no jinsei ni okeru kaigokeiken no imi [Research on family care for elderly persons with dementia: The meaning of care experience in the lives of wife and daughter caregivers]. *Nursing Research, 28*(4), 67-91. Retrieved from <http://www.igaku-shoin.co.jp/journalPortal.do?journalPortalId=681>
- Zarit, S. H., Femia, E. E., Kim, K., & Whitlatch, C. J. (2010). The structure of risk factors and outcomes for family caregivers: Implications for assessment and treatment. *Aging & Mental Health, 14*, 220-231. doi:10.1080/13607860903167861

- Zarit, S. H., Reever, K. E., & Bach-Peterson, J. (1980). Relatives of the impaired elderly: Correlates of feelings of burden. *The Gerontologist, 20*, 649-655. doi:10.1093/geront/20.6.649
- Zimet, G. D., Powell, S. S., Farley, G. K., Werkman, S., & Berkoff, K. A. (1990). Psychometric characteristics of the Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 55*, 610-617. doi:10.1207/s15327752jpa5503&4\_17

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