

The Relationship Between Dementia Severity and Communicative Ability from a Family Caregiver's Perspective

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The Relationship Between Dementia Severity and Communicative Ability from a Family Caregiver's Perspective

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Abstract: The relationship between dementia severity in persons with dementia (PWD) and communicative ability from the perspective of their family caregivers was investigated. There was a significant correlation between Clinical Dementia Rating Scale (CDR) and communicative abilities in Communicative Abilities of Daily Living Family Questionnaire (CADL-FQ), but not between CDR and language functions in CADL-FQ. Family caregivers considered that interpersonal interactions with a degenerative process might be affected by communicative abilities, or language use in context, not by issues in language functions alone. We discussed ways to intervene for communicative abilities in dementia to support the well-being of PWD and their family caregivers.

Key words: Communicative Ability; Dementia; Family Caregiver

Knowledge Focus: Best Practices

Topic Area: Health & Wellbeing

Background

In dementia, various cognitive dysfunctions, such as memory, language, and problem solving, occur in a degenerative manner, in that they gradually deteriorate over time. Holland (1982) stated that persons with dementia (PWD) retained the ability to speak, but that it was difficult to communicate with them.

The difficulties experienced in communicating with PWD are assumed to be caused by, not only their decreased language functions, but also certain pragmatic aspects. In this area, pragmatic aspects refer to language use in context such as turn-taking and appropriate topic introduction during interpersonal interactions (Kempler, 1991). Interpersonal interaction is regarded as a key element of communication in which language information, such as linguistic semantics, are modified by extralinguistic information, such as body language, during interpersonal interactions. In this sense, communication requires the utilization of various cognitive functions, from language abilities to those involving memory, attention, and executive functions.

If PWD experience difficulties in language production or comprehension, communication attempts with them become hindered. Conversely, if PWD experience cognitive dysfunctions, such as memory disorders or executive dysfunctions, other than language disabilities, their language use in context becomes further deteriorated, resulting in increased difficulties in

communication. That is, resulting in increased difficulties in interpersonal interactions, not only do language dysfunctions cause communication deteriorations in context, but so do memory disorders or executive dysfunctions.

Some studies (Kemper & Altmann, 2009; Rousseaux, Sève, Vallet, Marie, & Mackowiak-Cordoliana, 2010) have reported that the characteristics of communication, in addition to other cognitive functions, undergo changes during a degenerative process, but it was not well understood how the caregivers of PWD would experience these communication problems with PWD in everyday life and how their dementia severity relates to these daily communication difficulties.

Our aim was thus to elucidate upon the communicative abilities of PWD as evaluated by family caregivers and the relationship between dementia severity and communication problems in everyday life. In other words, we investigated whether language functions and its use in context would differ during the daily lived experiences of PWD, and how their dementia severity relates to their communication through the analyzing of questionnaires as answered by family caregivers. Based on these analyses, we sought to outline how to best intervene in the communication challenges of PWD by educating family caregivers in improved communicative attitudes, aiming to increase the well-being of both PWD and their family caregivers.

Methodology

We studied 25 PWD and their family caregivers. The PWD included 16 males and 9 females, ranging in age from 63 to 91 years old, with 21 being categorized as having Alzheimer's disease and 4 being categorized as others. Regarding the family caregivers, 6 were male and 19 were female, with 4 being the PWD's children, while the others were all spouses (Table 1).

These participants were diagnosed with dementia and were recruited by an author of the National Center for Geriatrics and Gerontology. The examination was conducted after obtaining participants' understanding and consent regarding this series of studies, which were all approved by the Ethics Committee of Kyoto University of Advanced Science and National Center for Geriatrics and Gerontology.

The Clinical Dementia Rating Scale (CDR) (Hughes, Berg, Danziger, Coben, Martin, 1982) for dementia severity and the Japanese version of the Communicative Abilities of Daily Living Family Questionnaire (CADL-FQ) (Watomori, Takeuchi, & Fukusako, 1990) were both administered in order to measure the participating family caregivers' evaluations of the daily communications with the PWD, as well as to assess the PWD's disease severity.

Table 1. Demographic Data of Participants

N=25			
Age (years old)	75.6 (63–91)		
Gender	male: 16	female: 9	
Education (years)	12.0 (9–16)		
Diagnosis	Alzheimer's Disease: 21	Others (frontotemporal dementia, argyrophilic grain dementia et al.): 4	
Clinical Dementia Rating	CDR0.5 [☆] : 12	CDR1: 9	CDR2: 2 CDR3: 2

Table 1 Image Description: Table of Demographic Data on Participants. Text include: N = 25; Age (years old): 75.6, (63–91); Gender: male: 16, female: 9; Education (years): 12.0 (9–16); Diagnosis: Alzheimer's Disease: 21 Others (frontotemporal dementia, argyrophilic grain dementia et al.): 4; Clinical Dementia Rating: CDR0.5[☆]: 12, CDR1: 9, CDR2: 2, CDR3: 2

☆ CDR 0.5 is basically regarded as a pre-dementia state. However, recent studies (Morris et al., 2001) reported CDR0.5 possibly represents the early stage of dementia. Therefore, we included CDR0.5 as dementia.

The CDR was used to measure participants' dementia severity, which were rated as follows: 12 participants were mild at CDR0.5, nine participants were at CDR1, two participants were moderate at CDR2, and two participants were severe at CDR3. The CDR uses semi-structured interviews to score patients' cognitive behaviors in daily life along six categories: memory, orientation, judgment and problem solving, community affairs, home and hobbies, and personal care.

The CADL-FQ consists of two parts: part one consists of four sub-items measuring language functions and part two is composed of 22 sub-items measuring communicative abilities or language use in context. The sub-items scores were from 0 (for no practical abilities) to 3 (for having practical abilities, including "NA" for not applicable). The total possible score ranges from 0 to 66.

Additionally, oral confrontation picture noun naming (oral naming) and auditory noun comprehension (auditory comprehension) were conducted to measure basic language functions.

Statistical analyses were performed using commercially available software IBM SPSS Statistics BASE (2013). Spearman's correlation coefficients were calculated in order to determine the relationships between each task's performance. The levels of significance were set at $p < 0.05$.

Results

The scores of the PWD's daily communicative abilities, as evaluated by the second part of the CADL-FQ, decreased as participants' dementia increased in severity. However, the language function scores, as evaluated by the first part of the CADL-FQ, did not decline depending on severity except for CDR3 (Figure 1).

Figure 1. CADL-FQ scores depending on dementia severity as measured by CDR

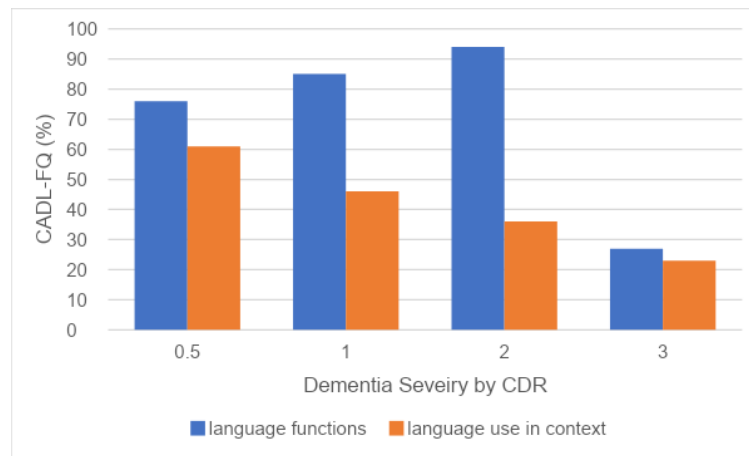


Figure 1 Image Description: Image represents a bar graph that includes CADL-FQ percentage-scores (y-axis), compared to “language functions” in blue and “language use in context” in orange measuring CDR0.5, CDR1, CDR2, and CDR3 (x-axis).

The CADL-FQ scores depended on dementia severity as measured by CDR. The scores were calculated as percentages (%) because the totals of CADL-FQ part 1 (8) and part 2 (22) were different. We analyzed the correlations between the results of the CADL-FQ, participants' CDR, and the outcomes of the other language tasks.

There was a significant negative correlation found between CDR and CADL-FQ part 2 with participants' communicative abilities ($r = -.50$, $p < .05$); however, no correlation was found between CDR, CADL-FQ part 1, and the participating PWD's language functions ($r = -.06$, $p = .77$). Moreover, neither the oral naming or auditory comprehension tasks correlated with either part of the CADL-FQ (oral naming and CADL-FQ part 1: $r = .27$, $p = .24$, oral naming and CADL-FQ part 2: $r = .42$, $p = .06$; auditory comprehension and CADL-FQ part 1: $r = -.15$, $p = .53$, auditory comprehension and CADL-FQ part 2: $r = .23$, $p = .28$) (figure 2).

Figure 2. CADL-FQ part 2 as a function of dementia severity according to CDR level

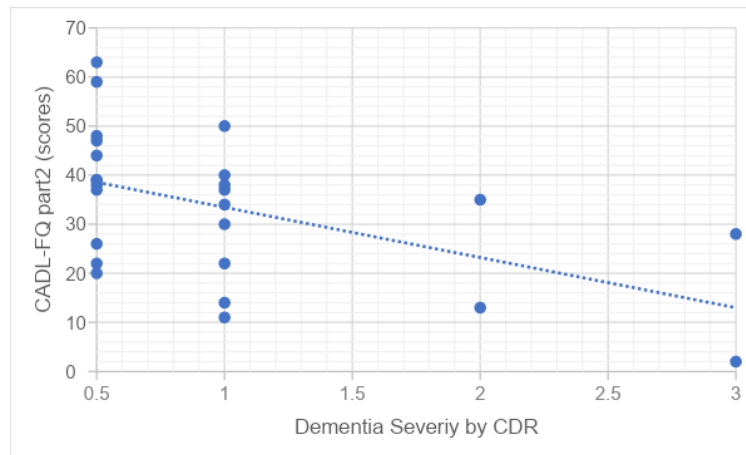


Figure 2 Image Description: Image represents a scatter diagram that includes “CADL-FQ part2” scores (y-axis), compared to measurements CDR0.5, CDR1, CDR2, and CDR3 (x-axis).

Conclusion

The characteristics of daily communication as it undergoes a degenerative process due to dementia, from a perspective of family caregivers, were investigated in order to provide a comprehensive analysis of the actual communicative abilities of PWD. Based on this study’s findings, we aim to provide information allowing more efficient and effective interventions to improve the communications between PWD and their family caregivers for greater quality of care. The results indicate that family caregivers consider communication, especially language use in context, to deteriorate as dementia becomes increasingly severe.

Communicative abilities, including language use in context, are also reported to deteriorate in people diagnosed with aphasia. In aphasia, both language functions, such as the input and output of language, deteriorate, leading to further communicative disabilities. The results of the CADL-FQ, as evaluated by family caregivers, found that the average percentage of communicative abilities, as measured by CADL-FQ part 2, was 74.8% (Nakajima et al., 1997). Compared to the results of this study, which found 61% of participants at CDR0.5, 46% at CDR1, 36% at CDR2, and 23% at CDR3, family caregivers felt that interpersonal interactions were more difficult with PWD when compared to people with aphasia. Even at an early stage of dementia (as shown by CDR0.5), family caregivers regard daily communications with PWD as more difficult than those did in the survey around people with aphasia.

One previous research (Kempler, 1991) mentioned that difficulties in communicating with PWD are caused by, not only language functions, but pragmatic aspects within the context of interpersonal interactions. The questionnaires filled in by family caregivers in our study similarly found that communication problems in PWD were possibly reflected by their language use within the context of interpersonal interactions and not by issues in language functions alone. It is clear that language impairments would result in various communication problems. However, not only language or verbal material, but also non-verbal information needs to be integrated with linguistic information in order for one to fully understand the presented context. It could be speculated that communicative abilities decline in PWD, not only because of the associated

language dysfunctions, but also because of the occurrence of various disabilities resulting from the degenerative progress of this disease, resulting in it becoming difficult for PWD to integrate multiple sources of information during communication.

Therefore, it was speculated that interventions aimed at the communication abilities of PWD would be more efficient by focusing on interpersonal interactions in addition to evaluating each cognitive function. From this, easier interpersonal interactions are derived from PWD's interactive relationships. Specifically, it would be efficient to not only intervene with the PWD, but to also educate their family caregivers on how to undertake better interpersonal interactions through the accommodation of caregivers' perspectives with those of PWD. For example, it would be one of practical intervention strategies by training caregivers to understand PWD's struggles with turn-taking.

From an early stage of dementia, wherein PWD do not experience severe language dysfunctions but do have other cognitive impairments, they exhibit both lexical and pragmatic errors. As the communication problems of PWD would occur in a degenerative manner, this study outlined the feelings of family caregivers around the daily communicative abilities of PWD, as well as how these evaluations are related to dementia severity.

Future research would be helpful if it were to shed light on how exactly the characteristics of family caregivers, in addition to the cognitive characteristics and disease severity of PWD, would influence their interpersonal interactions with PWD in order to develop more effective interventions that will enhance both the well-being of PWD and that of their family caregivers.

Authors



Takako Yoshimura, Ph.D., is a speech therapist and neuropsychologist. Her current focuses are on cognitive functions and communication abilities in dementia, as well as in seeking to develop effective interventions for dementia patients with communication difficulties.

Aiko Osawa is a medical doctor of rehabilitation medicine. Her research interests are rehabilitation medicine and the neuropsychology of cerebrovascular diseases and neurodegenerative diseases.

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