The language and communication problems associated with dementia of the Alzheimer's type (DAT) have serious consequences on the physical and emotional status of family caregivers. Despite the recent advances in our knowledge of the language and communication problems associated with DAT and their effect on family caregivers, several questions remain unanswered. These include: (1) What are the communication problems that family members perceive exist between themselves and their relative with DAT?, (2) What are the relationships between family members' perceptions of communication problems and objective measures of communication breakdown?, (3) How do family members cope with communication problems?, (4) How much stress do family members feel as a result of communication problems?, and importantly, (5) What strategies do family members use to reduce overall communication related stress? The objective of our study was to complete the psychometric development of an empirically derived questionnaire on communication and DAT called the *Perception of Conversation Index – Dementia of the Alzheimer's type (PCI-DAT).*

The *PCI-DAT* is an evaluative, self-report questionnaire completed by family caregivers of individuals with DAT. The purpose of the *PCI-DAT* is to help researchers and clinicians better understand the nature of the communication problems experienced by family care providers in their interactions with a community-dwelling relative with DAT. The questionnaire also identifies potential sources of anxiety and frustration associated with communication problems and with the caregiving process. In its final form, the *PCI-DAT* will help family members and clinicians identify language, speech, and other cognitive-communication strategies that are supportive and useful in reducing the communication-related aspects of caregiving stress. The *PCI-DAT* has undergone extensive development following a six-stage paradigm for health care instrument construction (Guyatt, Bombardier & Tugwell, 1986; Kirshner & Guyatt, 1985). To date, over 150 family caregivers of individuals with DAT completed earlier versions of the *PCI-DAT*. Written and verbal feedback on the *PCI-DAT* also was obtained from 41 expert speech-language pathologists from across Canada (Harkness, 1999). Reliability analyses of the *PCI-DAT* using Cronbach's alpha showed excellent levels of internal consistency among its five sections (section 1: 0.973, section 2: 0.921, section 3: 0.794, section 4: 0.867, section 5: 0.947) (Orange et al., 2008). All sections also demonstrated significant test-retest reliability estimates (section 1: 0.831, section 2: 0.551, section 3: 0.651, section 4: 0.783, section 5: 0.904). The purpose of this study was to determine the validity properties of the *PCI-DAT*.

Method

The study used a prospective, between groups, multi-centre design. Participants were recruited from Alzheimer Society chapters and physician referrals in London Canada and Buffalo New York, and from an Alzheimer Research Centre in Vancouver Canada.

The *PCI-DAT* consists of 74 items categorized into five sections. Section 1 contains 22 items and addresses the conversation difficulties of individuals with DAT. Section 2 contains 24 items related to the conversation repair strategies used by family caregivers. Section 3 contains 12 conversation repair strategies used by individuals with DAT. Section 4 contains 8 items related to family caregivers' feelings related to conversational difficulties. Section 5 contains 8 items that address social challenges faced by the DAT couples as a result of their communication problems. Family caregivers rated each of the 74 items using a 7-point Likert scale.

Participants

There were a total of 113 dyads in this study (i.e., 226 participants). There were 84 DAT dyads comprised of a person with DAT and a family caregiver. There were 29 healthy control dyads comprised of a person who served as a control for the participants with DAT and a family member who served as control for DAT family caregivers. Forty-four of the DAT dyads were classified as early stage DAT (24 female DAT participants and 32 female caregivers), 22 were middle stage

DAT (17 female DAT participants and 14 female caregivers), and 18 were late stage DAT (14 female DAT participants and 12 female caregivers). Thirty-five of the 58 healthy control participants were women. All DAT, control and family member participants reported English as their primary language. Twenty-one completed grade school, 74 high-school, 16 community college, 70 university, 24 post-graduate education, and 18 completed vocational/technical school.

Family caregivers of participants with DAT and the normal older adult caregiver controls had a minimum of once a week face-to-face communication with their relative over the past year to ensure that they were familiar with the communication styles and patterns of their relative. All family caregivers of participants with DAT and all normal older adult control participants had no known history of medical, neurological, or psychiatric illnesses that interfered with speech, language, hearing, or cognitive performances. None were clinically depressed based on a cut-off score of 14 on the *Geriatric Depression Scale* (Yesevage et al., 1983).

Procedure

All data were collected in participants' homes. Family caregivers and their relative with DAT, and all normal older adult controls and their family partner completed the *Standardized Mini-Mental State Examination* (Molloy et al., 1991). Normal older adult participants in the control group and individuals with EDAT or MDAT completed the *Arizona Battery for Communication Disorders of Dementia*, a standardized measure of linguistic-communication of individuals with early and middle stage DAT (Bayles & Tomoeda, 1993). Individuals with MDAT and LDAT also completed the *Functional Linguistic Communication Inventory*, a standardized measure of functional communication of individuals with middle and late stage DAT (Bayles & Tomoeda, 1994). All family caregivers of the participants with DAT and the family members of the normal older adult controls completed the *Conversation Analysis Profile for People with Cognitive Impairment (CAPPCI)* (Parts A & B), a non-standardized measure of conversation abilities of individuals with cognitive impairment (Perkins, Whitworth & Lesser, 1997).

<div align="center">Results</div>

For this study, construct validity was assessed using the method of known groups (i.e., using the measure to detect differences among and between participants in the EDAT, MDAT, and LDAT groups and in the control group). Results of a multivariate analysis of variance suggested that individuals with EDAT and control participants were significantly different on all sections on the *PCI-DAT*, and also suggested significant differences between individuals with EDAT and individuals with MDAT on sections 1 and 5.

Concurrent validity was estimated by computing Pearson correlations among the five section scores of the *PCI-DAT*, three construct scores of the *ABCD* (episodic memory, linguistic expression, and linguistic comprehension), the ten items of the *FLCI*, and the means of all eight section scores of the *CAPPCI*. Negative correlations of both statistical and substantive significance were demonstrated on the *ABCD* for all three construct scores; with four of five sections of the *PCI-DAT* (section 3 did not demonstrate any significant correlations). All of the *FLCI* items demonstrated large significant negative correlations with section 1 of the *PCI-DAT*. Finally, correlations between the *CAPPCI* section score means and the *PCI-DAT* section scores were generally positive, with sections 4 and 5 of the *PCI-DAT* demonstrating the largest correlations.

<div align="center">Conclusions</div>

The results of our analyses demonstrated the robust construct and concurrent validities of the *PCI-DAT*. Combined with previous findings showing the strong reliability of the *PCI-DAT*, results from our validity analyses demonstrate that the *PCI-DAT* has the capability of providing valuable findings to guide clinical practice for individuals with DAT and their family caregivers, and to help researchers evaluate the effectiveness of future family caregiver communication education and training interventions.

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