NARRATIVE LANGUAGE ABILITIES IN ADULTS WITH PARKINSON DISEASE

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Abstract
Narrative language requires sophisticated discourse planning. This may be compromised in adults with Parkinson’s disease (PD); secondary to deficits in abstract cognitive and higher level linguistic abilities. In this pilot study, we collected narrative language samples from 12 adults with PD (63 to 89 years), using a wordless picture book. Formal test results indicated difficulty in identifying and answering ambiguous and indirect questions. Narrative samples were transcribed and analyzed. Results indicated difficulty in identifying and making inferences.

Introduction
• Research findings indicate that abstract cognitive and higher level language abilities are compromised in individuals with Parkinson’s disease (PD).
• Investigations have revealed that subtle language deficits may exist even in non-demented individuals with PD (Berg et al., 2003; Grossman et al., 2002; Gurd, 2000; Kemmerer, 1999; Lewis et al., 1998; & Hough, 2004).
• Most studies focus on semantic and grammatical deficits.
• Semantic deficits: Generative naming deficits (Hough, 2004).
• Verbal fluency deficits (Gurd, 2000).
• Morpho-syntactic deficits: Difficulty understanding ambiguous sentences (Lewis et al., 1998) and passive sentences (Grossman et al., 2002; Kemmerer, 1999).
• High-level language deficits (Berg et al., 2003; Lewis et al., 1998).
• Making inferences: Understanding metaphors.
• Only one study up to date that focused on conversational pragmatics (McManus & Duns, 2003).
• Results indicated that participants with PD had difficulties in conversational appropriateness, stylistics, speech acts, gestures, prosodic inflections, and facial expressions.

Rationale
• Limited research on pragmatic language abilities in adults with PD.
• Narrative language requires sophisticated discourse planning.
• May be compromised in adults with PD, secondary to deficits in abstract cognitive and higher level language abilities.
• Conversations and personal narratives are inherent to everyday life.
• Results may provide insight for designing intervention.
• Potential impact on quality of life for individuals with PD.

Research Questions
What are the narrative language abilities of adults with PD?
Are there differences between the narrative abilities of adults with PD and age, gender, and education-matched controls?

Method
Participants
• 12 adults with PD, aged 63-89 years, 4 females and 8 males.
• 10 lived in the community; 2 lived in a nursing home.
• Duration of disease ranged from 3-12 years.
• Number of years of education ranged from 13-22 years.

Procedure
• Participants were initially administered the following cognitive and language tests:
  • Glimpse Rating Scale, 2nd Ed. (GRT-2; Junca, Leiten, & Matta, 2001).
  • MacArthur Picture Vocabulary Test (PPVT-III B; Dunn & Dunn, 1997).
• Three sub-tests assessing pragmatic language from the Comprehensive Assessment of Spoken Language (CASL; Camper-Woolfolk, 1999).
• Participants were then asked to familiarize themselves with the story from a wordless picture book (Flip, where are you? Mayer, 1969). They were then instructed to narrate the story as if they were telling it to a child.
• The narrative samples were audio and video recorded.

Data analysis
The narratives were transcribed using the Systematic Language of Transcripts (SALT; Miller & Chapman, 2000).
• The first author then analyzed the narrative samples based on the existing coding systems in the literature.
• Macrostructure: Story grammar analysis and story structure levels. (Hughes et al., 1997)
• Microstructure: Reference and conjunctive markers analyzed based on Hughes et al.’s adaptation of Halliday & Hassan’s coding system.
• Other types of connective markers not analyzed, as fewer of these occur in oral narratives (Liles et al., 1999).
• The third author served as the external audit during the coding process. Procedural checks & clarifications were discussed on a regular basis. Inter-rater reliability is ongoing.

Results
Narrative Language Abilities
• Use of ambiguous or incorrect referents (4 participants had 15% or greater incomplete ties).
• Lack of appropriate cohesive markers to indicate transitions from one episode to another.
• Participants used the simple conjunctive cohesive marker ‘and’.
• Lack of semantically rich conjunctions.
• Persistent use of the simple conjunctive cohesive marker ‘and’.

Comparative Case Study
Figure 1: Narrative abilities of PD participant compared to age, gender, and education-matched control.

Microstructure Narrative Analysis
• Both provided a title and named the three main characters in the story.
• Power references to the internal responses or characters in the narrative of the participant with PD.
• Participant with PD did not use child-directed register; used complex vocabulary.
• The control participant asked several questions directed to the “child,” also defined certain complex words.
• Participant with PD did not provide an adequate resolution to the problem in the story.
• The control participant asked several questions and placed the story in the context of the narrative of the participant with PD when compared to control.

Microstructure Narrative Abilities
• Ambiguous referents and lexical errors present in the narrative of the PD participant.
• Higher percentage of pauses and reformulations in PD participant’s narrative.

Discussion
• Formal language test results:
  • Deficits in identifying & resolving ambiguities; making appropriate inferences.
  • Better performance on pragmatic sub-test on CASL.
  • Possibly attributable to ease of task leading to ceiling effects.
• Results of cognitive testing:
  • 7 participants scored in below average to average range. Individual differences seen: higher performance in narrative and lower language testing not always seen in the more able individuals with PD.
• Narrative test results indicate deficits in: understanding the speaker’s orientation to the story; providing unambiguous information; referencing the external responses of the character; and making appropriate inferences.
• Deficits may be secondary to abstract cognitive and higher language ability deficits.
• Higher percentage of pauses and reformulations, and lack of prosodic inflections attributable to motoric deficits.
• Pragmatic effects of speech deficits include communicative breakdowns leading to deficits in functional communicative competence of speakers with PD.

Future Directions
• Pilot work supports further investigation of narrative and other pragmatic language abilities in adults with PD.
• Recruitment of age, gender, and education-matched controls needed.
• Expanding analysis from narrative to other contexts, including conversations.

Developmental task & age-matched assessment for assessing adults with PD may assist in identifying pragmatic deficits that affect quality of life.

References