

**Title: The Relationship Between Verbal Working Memory and Discourse Comprehension in Older Adults**

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Research in neurologically impaired populations suggests that language deficits are linked in part to impairments of attention and working memory (Murray, 2012). Further, separate working memory subsystems may exist for phonological, semantic and syntactic information (Caplan & Waters, 1999, Friedmann & Gvionn, 2003). This study examines how different types of linguistic working memory relate to discourse comprehension in older adults.

Study participants (n > 35, ages 55-85 years) complete two assessments. In the first assessment, participants complete a set of working memory n-back tasks adapted from Wright et al. (2007) that measure processing of phonological, semantic, and syntactic information. These computerized tasks involve sequential visual presentation of words or sentences and participants indicate whether the current stimulus corresponds to the one presented in a previous position (either 1-back or 2-back). Corresponding stimuli include those that rhyme (phonological condition), belong to the same category (semantic condition), or express the same idea in active and passive sentence forms (syntactic condition). In the second assessment, participants complete the reading version of the Discourse Comprehension Test (DCT; Brookshire & Nicholas, 1993), a series of stories with corresponding questions that assess understanding of main ideas vs. details, and directly stated vs. implied information.

Data will be analyzed by regression analyses that evaluate which subtype of linguistic working memory predicts performance on discourse comprehension. Simple correlations will be used to examine working memory performance and DCT subtype scores. As discourse comprehension hinges largely on extraction of meaning, we expect semantic working memory to be more strongly related to comprehension compared to syntactic or phonological working memory. We also expect that working memory performance, particularly semantic memory, will be more strongly related to comprehension of detailed and implied information compared to main idea and directly stated information.

Results from this study will contribute to our understanding of the relationship between working memory and language processing. A better understanding of discourse in older adults may be important in helping to maintain cognitive function and independence. This research may also help us to design intervention strategies to improve communication in aphasia and other neurologic conditions.

**Reference List**

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