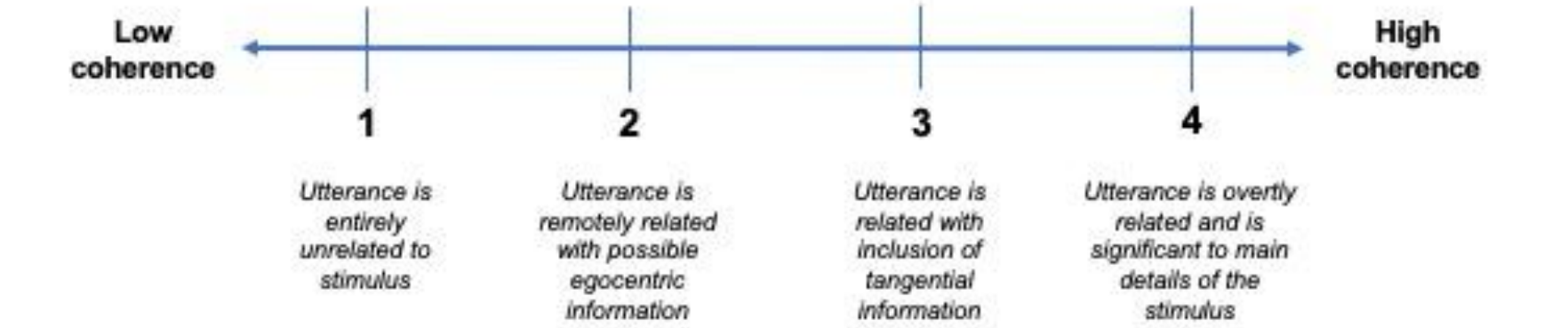


## INTRODUCTION

Adults with traumatic brain injury (TBI) may experience communication deficits at the macrolinguistic and microlinguistic levels of discourse <sup>1</sup>. Global coherence is an element of macrolinguistics defined by the speaker’s ability to maintain topic organization and thematic unity <sup>2</sup>. Maintenance of global coherence has been studied amongst neurotypical adults <sup>2</sup> and adults with acquired neurogenic disorders <sup>1</sup>, however **little is known about the global coherence of older adults with TBI** <sup>1</sup>. This is concerning because older adults are among those most at risk for TBI <sup>3</sup>. The objective of this study was to quantify the degree of global coherence in the discourse of older adults’ with TBI using a 4-point global coherence scale during a narrative story retelling. Based on prior research in younger adults<sup>1</sup> we hypothesized that older adults with TBI would produce narratives that were rated as less coherent than those of older adults with no TBI history.

## MATERIALS AND METHODS

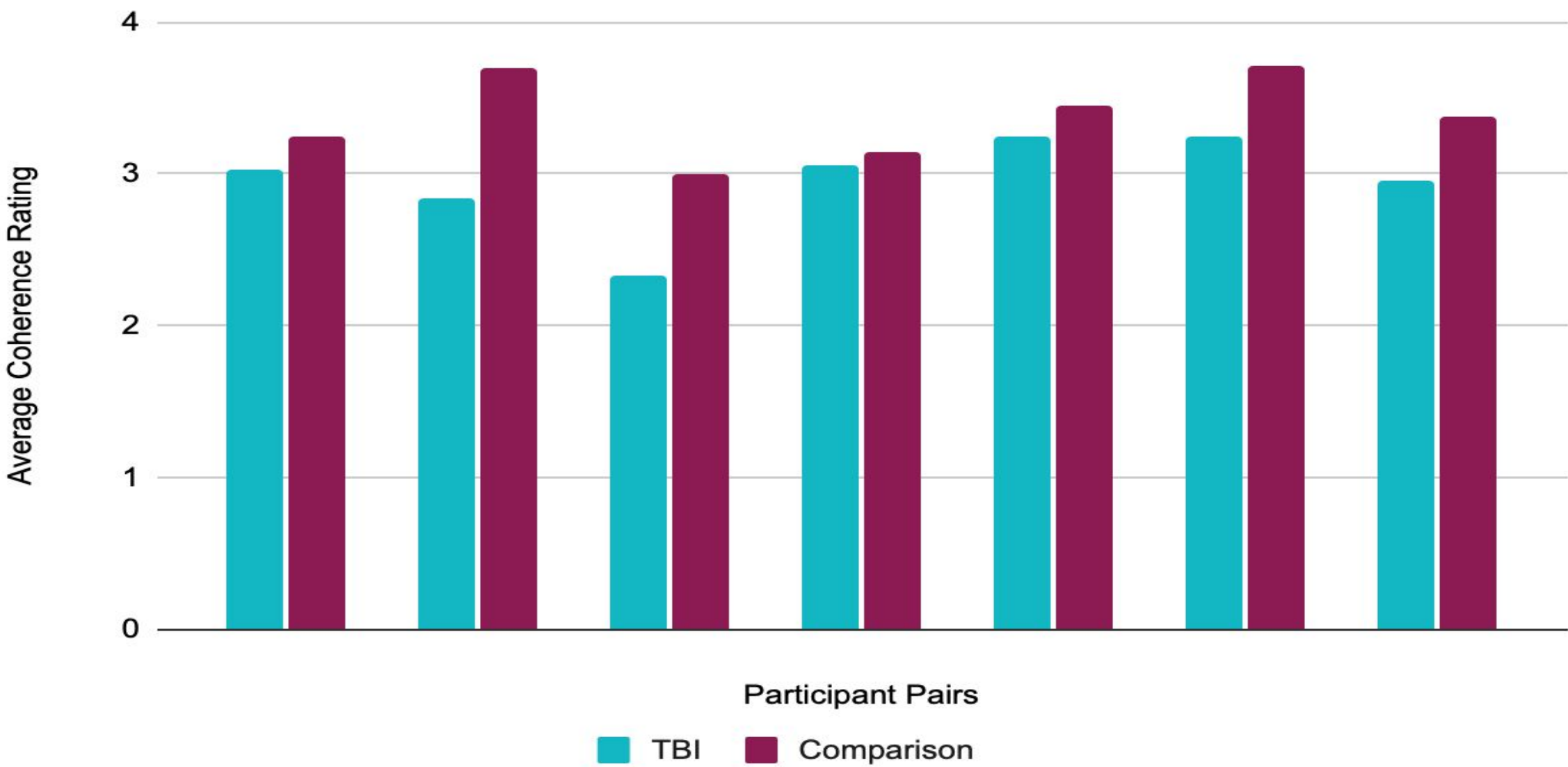
We conducted a preliminary retrospective analysis of narrative discourse samples available through TBI TalkBank <sup>4</sup> (Marshfield and Togher data sets) and Aphasia Bank<sup>5</sup> (Wright, comparison data set). Participants were English-speaking adults between the ages of 55-89 years who sustained moderate-severe TBI, and six comparison participants with no history of TBI, matched to the TBI group for age and sex. Following TalkBank protocol, participants reviewed a wordless story book of the Cinderella story, then were asked to retell the story in their own words. Each story retelling transcript was rated for global coherence using the 4-point scale developed by Wright and colleagues; higher scores indicated greater coherence <sup>2</sup>. Raters were blinded to group and each transcript was analyzed by two trained raters. Disagreements between raters were resolved by a third rater and inter-rater reliability was calculated across all transcripts.



Adapted Scale from Wright & Capilouto (2012)

## STUDY OBJECTIVE

To quantify the degree of global coherence in the discourse of older adults’ with traumatic brain injuries using a 4-point global coherence scale during a narrative story retelling.



TBI GROUP					COMPARISON GROUP				
Participant	Sex	Age	Total Utterances	Average Coherence Rating	Participant	Sex	Age	Total Utterances	Average Coherence Rating
TBI 1	Female	56	48	3.02	C1	Female	56	22	3.24
TBI 2	Female	66	19	2.84	C2	Female	66	47	3.7
TB 3	Male	59	12	2.33	C3	Male	63	44	3
TBI 4	Male	61	19	3.05	C4	Male	64	41	3.15
TBI 5	Male	57	33	3.24	C5	Male	57	20	3.45
TBI 6	Male	68	4	3.25	C6	Male	69	42	3.71
Summary Statistics		61.17	22.5	2.96			62.50	36	3.38

## RESULTS

Six adults (2 female, 4 males) with TBI and six comparison (2 females, 4 males) participants were included in the analysis. The TBI and comparison groups were similar in age ( $U = 15.5$ ,  $p = .75$ ). The groups were also similar in the total number of utterances produced ( $U = 8.0$ ,  $p = .13$ ). Analysis of our primary outcome measure, global coherence, indicated an overall inter-rater reliability of 62.11%. On average, and across all six matched pairs, participants with TBI had poorer average coherence ratings, however the group difference did not reach significance ( $U = 7.5$ ,  $p = .055$ ).

## DISCUSSION

Discourse impairments are a key feature of the TBI sequelae <sup>1,7-10</sup>. In this preliminary study, we aimed to gather data regarding global coherence in the narrative discourse of older adults with moderate to severe TBI. Results indicate that while each of our six participants with TBI had poorer average global coherence ratings than their matched, uninjured peers, the groups did not differ significantly. This is likely due, at least in part, to our small sample size and further evaluation with larger sample sizes is needed. Despite extensive training and a structured rating scale of global coherence, scores varied per raters’ perceptions. Our relatively low inter-rater reliability raised concerns about clinical application of global coherence rating scales. These findings support further work to investigate clinically feasible measures of discourse performance of adults with TBI, including measures of global coherence.

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