Background

- Discourse is any number of highly individualized and complex speech acts used to transmit and receive information for survival, cooperation, and ritual purposes.1 2
- Individuals with language disorders demonstrate impaired discourse ability and a resultant decrease in functional communication.3
- Discourse is known to be a good predictor of life participation and quality of life in persons with aphasia (PWAs).4
- Analysis of discourse generally requires specialized training and can be time-consuming, limiting its clinical effectiveness.5
- Researchers have suggested that analysis of a core lexicon (CoreLex) during structured narrative tasks could provide a time-efficient and informative index of functional communication abilities.6
- CoreLex has been investigated using several methods in the Cinderella story, and a procedural discourse task (how to make a peanut butter and jelly sandwich) in PWAs.7
- In two studies, CoreLex was restricted to nouns and verbs,8 9 while another included all parts of speech.8
- For the study including all parts of speech, CoreLex performance was strongly correlated to main concept production (MC, a measure of narrative adequacy) during Cinderella retelling.10
- This study aimed to:

  - Determine the CoreLex of a picture sequence description task in the AphasiaBank protocol.
  - Calculate CoreLex scores for control and PWAs.
  - Determine how well CoreLex predicts narrative adequacy, as judged by MC analysis.

Methods

- Transcripts of 146 control participants and 179 PWAs were retrieved from the AphasiaBank database.
- The picture description narrative was retrieved from the AphasiaBank database using the computerized language analysis (CLAN) command: gem +sWindow +aWindow +d1 +tPAR +c4 (for Core Lexicon (MC)).
- The entire lexicon for Broken Window picture description control participants was identified using the CLAN command: freq +tPAR +s+4+5+6+7+8+9+10+11 +tgem + +sWindow +aWindow +d1 +tPAR +c4 (Core Lexicon (MC)).
- Flows were scored using this list.
- Individuals received a 1 if the lemma was present in the transcript and a 0 if it was absent.
- The sum of values across the transcript served as the CoreLex score.

Main Concepts (MC)

- Previous research identified the MCs produced by 50% of controls during discourse in persons with aphasia.11
- This study aimed to:

  - Calculate CoreLex and MC scores during Picture Description.

Data Analysis

- Omnibus median tests were conducted to confirm hypothesized differences between controls and PWAs for CoreLex and MC scores.
- Planned comparisons (median tests, Holm-Bonferroni corrected) were used to identify and characterize differences between subtypes of aphasia.
- Spearman correlations were performed to identify the relationship between CoreLex and MC scores.

Results

- Omnibus median tests were conducted to confirm hypothesized differences between controls and PWAs for CoreLex and MC scores.
- Planned comparisons (median tests, Holm-Bonferroni corrected) were used to identify and characterize differences between subtypes of aphasia.
- Spearman correlations were performed to identify the relationship between CoreLex and MC scores.

Discussion

- Individuals with aphasia differed significantly from control participants on CoreLex and MC scores.
- Post hoc median tests were conducted to confirm that NABWs were significantly different from control participants for CoreLex and MC scores.
- CoreLex $x^2 = 26.604, p < .001$ and MC $x^2 = 12.170, p < .001$
- This result provides further evidence for the existence of a group of individuals with discourse impairments who receive little or no therapy based on standardized test scores.
- Compared to a similar investigation of the Cinderella story, CoreLex and MC scores for Broken Window stories more consistently differentiated fluent from non-fluent aphasia types.
- However, findings of significant differences between fluent (anomic, conduction, Wernicke’s) subtypes was similar for both stories.
- For Broken Window and Cinderella stories only CoreLex scores significantly differed between anomic and NABW groups.
- Although the groups may be comparable in conveying the gist of the story, they appear to differ in the typicality of the lexical items used during the telling.
- The Broken Window narrative is shorter than the Cinderella retelling, and may be more appropriate for some clinical settings.
- Significant correlations between CoreLex and MC scores for all subtypes except conduction aphasia indicate that a CoreLex checklist may be a time efficient and reliable predictor of narrative adequacy.
- This may be more practicable in many instances for clinician use.
- However, different correlation strengths for the subtypes lends support to the use of multidimensional approaches to narrative assessment.
- MC analysis provides more detailed information about narrative adequacy, including accuracy and completeness of details.
- Recently developed MC checklists provide a standardized, norm-referenced and non-transcription based method of completing such a multidimensional analysis.
- It is likely that the unique deficits in conduction aphasia allow these individuals to convey much of the information about a story through circumlocution without using a typical lexicon. However, this hypothesis should be confirmed through further analysis of CoreLex and MC scores in this group.

Future Directions

- Further investigations into the effect of discourse impairments on individuals who scored NABW is needed.
- The clinical relevance of CoreLex and MC scores must be established to support use as a diagnostic tool to aid progress monitoring.
- In the future, practicing clinicians will be recruited to score transcripts of individuals with aphasia to ensure that results provided by these measures are are valid and reliable across sites and professionals.

References

4. The clinical relevance of CoreLex and MC scores must be established to support use as a diagnostic tool to aid progress monitoring.
5. In the future, practicing clinicians will be recruited to score transcripts of individuals with aphasia to ensure that results provided by these measures are are valid and reliable across sites and professionals.

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