Abstract

Introduction

Quantitative measures of structured discourse skills of adults with aphasia can be valuable in documenting evidenced-based practice. A number of researchers have shown that measures such as Yorkston and Beukelman's (1980) content unit analysis and Nicholas and Brookshire's (1993) correct information unit (CIU) analysis are helpful in monitoring changes in the connected speech of individuals with aphasia (Craig et al., 1993; Nicholas & Brookshire, 1993; Yorkston & Beukelman, 1980). Moreover, researchers suggest that any comprehensive assessment of structured discourse should also include a measure of the ability to relay main events (Capilouto, Wright & Cranfill, 2003; Nicholas & Brookshire, 1995).

van Dijk and Kintsch (1983) have suggested that one way speakers establish main ideas in conversation is by communicating the relations and causal links among units of information. Wright, Capilouto, Wagovich, Cranfill, and Davis (2005) developed a main event measure designed to focus on an individual's ability to convey the relationships and causal connections between ideas in narrative discourse. Results of previous investigations have demonstrated that individuals without aphasia conveyed a higher proportion of main events than adults with aphasia (Capilouto, Wright, & Wagovich, 2005a). Further, findings indicated that participants, regardless of age or presence of aphasia, communicated a greater proportion of relationships between characters, actions, and ideas in response to sequential versus single pictures, but neurologically intact participants did not perform at or near ceiling level on the measure (Capilouto, Wright, & Wagovich, in press, 2005; Wright et al., 2005). Task instructions in the previous investigations requested participants to "tell what was going on in the picture(s)". Olness (2005) suggested that instructions specifically requesting a beginning, middle, and end might yield qualitatively and quantitatively different narratives. The purpose of the present investigation, then, is two-fold. First, we compared the performance of two groups of healthy older adults on the ability to convey main events in pictured stimuli when two different task instructions were provided. Healthy older adults were used in this initial investigation to determine the impact of altered directions on discourse samples of speakers without specific language deficits. In doing so, the intent is to provide normative data on a measure of discourse, with different task instructions, that can then be used as a reference for evaluating the discourse abilities of adult clinical populations. Second, we established session-to-session reliability of the main event measure using the different task instructions.

Method

Participants

Participants included 24 healthy older adults. Participants were assigned to one of two groups based on task instruction – picture description (PD) and storytelling (ST). Participants in the two groups did not differ for age or education; and, all participants demonstrated normal cognitive functioning as measured by the Mini-Mental Status Examination (MMSE; Folstein, Folstein, & McHugh, 1975). See Table 1 for group demographics.

Language Elicitation and Transcription

Participants' language samples consisted of their storytelling of the two single pictures and two picture sequences from Nicholas and Brookshire (1993). The pictures are referred to as Birthday Cake (single picture), Cat in the Tree (single picture), Fight (picture sequence), and Directions (picture sequence). The samples were audio-recorded, then orthographically

transcribed. Participants in the PD group received the following instructions: “Talk about what is going on in the picture(s)”, then, if the participant stopped after 15 seconds or less, he/she was prompted with “Can you tell me more?” No other instructions were given. Participants in the ST group received the following instructions: “I want you to look at the picture and tell me a story that has a beginning, a middle and an end”. If the participant stopped after 15 seconds or less, he/she was prompted with “Can you tell me more?” No other instructions were given.

Language Analysis: Proportion of Main Events

As a measure of the content of participants’ storytelling, each sample was evaluated for the proportion of main events included. A main event was operationally defined as an event of sufficient importance to the story as a whole as well as its independence from the other events in the story (Capilouto et al., 2005a, 2005b; Wright et al., 2005). The purpose of the main events analysis was to capture the extent to which participants understood and expressed relationships between characters, actions, and ideas. Each picture stimulus included a different number of main events, as follows: Cat in the Tree – 4; Birthday Cake – 5; Fight – 7; and Directions – 8. A binary scoring system was used for scoring the main events and calculating the raw scores. Responses were scored as either correct, indicating that all the necessary information was provided, or incorrect. Raw scores were converted to proportion of main events told for each picture stimulus. This permitted comparison of performance across tasks without biasing the results (See Table 2 for main events for two of the stimuli).

Procedures

Participants attended two sessions occurring approximately two weeks apart. The testing protocol was completed first, and following testing, the four experimental tasks were administered. The second session consisted of a second administration of the experimental tasks. The order of presentation of the picture stimuli was randomized for each session and across participants. Prior to administration of the tasks in the first session, participants practiced by describing the events/telling the story in the Cookie Theft picture (Goodglass & Kaplan, 1983) and the Picnic Scene picture (Kertesz, 1982). Following the practice items, the experimental stimuli were shown to each participant.

Results

Group Differences

A mixed analysis of variance (ANOVA) of group (PD, ST) by picture stimulus type (Birthday Cake, Cat in the Tree, Fight, Directions) was conducted to determine a) group differences in proportion of main events told and b) effect of picture stimuli type. Preliminary results indicated that the group main effect was significant, $F(1, 46) = 47.79$, $p < .0001$, with the ST group producing a significantly higher proportion of main events compared to the PD group. The picture stimulus type main effect was statistically significant, $F(3, 138) = 26.21$, $p < .0001$; planned comparisons indicated that participants produced significantly higher proportion of main events for the Birthday Cake, Fight, and Directions picture stimuli compared to the Cat in the Tree picture; no other planned comparisons were significant. The picture stimulus type by group interaction was also significant, $F(3, 138) = 5.25$, $p < .01$. See Table 3 for group means and standard deviations.

Session-to-Session Reliability

Reliability of the measures was determined in two ways: (a) absolute value of change in performance from Session 1 to Session 2, and (b) Pearson correlations between Session 1

and Session 2 (See Table 4). For both groups, the main events measure was stable across sessions. The mean absolute value of change was 13% for the PD group and 14% for the ST group and Pearson correlations were significant for the PD group, $r = .69$, and ST group, $r = .67$ at $p < .0001$.

Conclusions and Implications of the Study

Results of the study suggest that narrative discourse performance, as measured by proportion of main events produced, is affected by task instruction. That is, the instructions that were more directive resulted in participants expressing a greater proportion of the relationships depicted in the pictures. Further, the ST group produced near ceiling level effects on the measure for all picture stimuli except the Cat in the Tree. The clinical implications regarding use of the main events measure with directed instructions will be discussed in further detail.

References

Capilouto, G., Wright, H. H., & Cranfill, T. B. (2003). Informativeness and efficiency of connected speech by younger and older adults. ASHA convention, Chicago, IL.

Capilouto, G. J., Wright, H. H., & Wagovich, S. A. (in press). Reliability of Main Event Measure for use in the Analysis of Structured Discourse. Aphasiology.

Capilouto, G. J., Wright, H. H., & Wagovich, S. A. (2005). CIU and main event analyses of the structured discourse of older and younger adults. Journal of Communication Disorders, 38(6), 431-444.

Craig, H., Hinckley, J. J., Winkelseth, M., Carry, L., Walley, J., Bardach, L., Higman, B., Hilfinger, P., Schall, C., & Sheimo, D. (1993). Quantifying connected speech samples of adults with chronic aphasia. Aphasiology, 7(2), 155-163.

Folstein, J. A., Folstein, S. E., & McHugh, P. R. (1975). "Mini-mental state": A practical method for grading the mental state for the clinician. Journal of Psychiatric Research, 12, 189-198.

Goodglass, H., & Kaplan, E. (1983). The Boston Diagnostic Aphasia Examination. Boston: Lea & Febiger.

Kertesz, A. (1982). Western Aphasia Battery. New York: Grune & Stratton.

Nicholas, L. E., & Brookshire, R. H. (1993). Quantifying connected speech of adults with aphasia. Journal of Speech and Hearing Research, 36, 338-350.

Nicholas, L. E., & Brookshire, R. H. (1995). Presence, completeness, and accuracy of main concepts in the connected speech of non-brain-damaged adults and adults with aphasia. Journal of Speech and Hearing Research, 38(1), 145-153.

Olness, G. (2005). Discourse genre and verb performance in picture-elicited discourse of adults with aphasia. Paper presented at the Clinical Aphasiology Conference, Sanibel, Florida.

van Dijk, T. A., & Kintsch, W. (1983). Strategies of discourse comprehension. New York: Academic Press.

Wright, H. H., Capilouto, G. J., Wagovich, S. A., Cranfill, T., & Davis, J. (2005). Development and reliability of a quantitative measure of adults' narratives. Aphasiology, 19(3/4/5), 263-273.

Yorkston, K. M., & Beukelman, D. R. (1980). An analysis of connected speech samples of aphasic and normal speakers. Journal of Speech and Hearing Disorders, 45, 27-36

Table 1. Summary of groups' demographic data.

Group	PD1 Group (N = 12)	ST2 Group (N = 12)
Mean age (SD)	67.0 (6.1)	66.2 (5.6)
Mean years of education (SD)	14.5 (2.2)	14.1 (3.5)
Gender	6M, 6F	4M, 8F

Note: 1Picture description; 2storytelling

Table 2. Main events for the Birthday Cake picture and the Directions picture sequence.

Main Events: Birthday Cake

1. It is the boy's birthday (birthday party).
2. The boy is crying because the dog ate (some of) his cake.
3. The dog is hiding under the sofa/couch.
4. The mother is mad at the dog/is scolding the dog (with a broom).
5. The guests are arriving.

Main Events: Directions

1. A man and a woman are driving/traveling and see/greet/say hello to a farmer on the side of the road.
2. The farmer is planting a tree.
3. The couple/the man ask(s) for directions.
4. The farmer directs them/gives them directions/tells them which way to go.
5. (The farmer watches as…) the man and woman take off/they continue on their way.
6. The farmer goes back to work digging the hole/planting the tree.
7. A little while (a few minutes) later, the couple sees the farmer (stops in front of the farmer) on the side of the road again.
8. They are angry with the farmer because he misdirected/gave them bad directions/did not give them good directions.

Note: The essential information for each main event is provided. Information in parentheses represents alternative ways a component of the main event could be stated. [/] represents alternative information that could have been stated to complete the main event.

Table 3. Means (standard deviations) and ranges for proportion of main events told by the groups for each picture stimuli (Session data are collapsed).

Group

PD1 Group ST2 Group
Single Picture (Birthday Cake)
Mean (SD) .31(.22) .75(.22)
Single Picture (Cat in the Tree)
Mean (SD) .19(.24) .49(.22)
Picture Sequence (Fight)
Mean (SD) .42(.20) .81(.21)
Picture Sequence (Directions)
Mean (SD) .53(.27) .71(.22)
Total
Mean (SD) .36(.26) .69(.24)
Note: 1Picture description; 2storytelling

Table 4. Mean absolute differences, standard deviations (SD), and ranges between sessions and Pearson product-moment correlation coefficients (r) for the groups.

Groups
PD2 Group (n = 12) ST3 Group (N = 12)
ME1
Mean .13 .14
SD .16 .15
Range 0-.75 0-.50
r .69* .67*
Note: 1proportion of main events calculated by dividing number of main events told by total number of main events; 2Picture description; 3storytelling; *significant at p