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Effects of group size on conversation treatment outcomes: Results of standardized testing

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Background

Group treatment for people with aphasia has the potential to improve communication and reduce social isolation, while also reducing medical costs. However, the mechanisms underlying group treatment are poorly understood.

This project examined how well two conflicting hypotheses – *treatment dosage* and *group dynamics* – predict conversation treatment outcomes, as measured by standardized tests. The treatment dosage hypothesis posits that treatment benefits are enhanced when clients have a greater number of practice trials during treatment. This hypothesis predicts greater treatment effects when treatment sessions involve a small number of clients, because clients have many opportunities to practice target skills. The group dynamics hypothesis posits that working with a group of peers who have similar impairments leads to better treatment outcomes than working with smaller groups of clients, due to interpersonal observational learning and peer support.

Aims

To determine whether smaller or larger groups are associated with better outcomes immediately after and six weeks after treatment. Treatment dosage predicts better outcomes for smaller groups, while group dynamics predicts better outcomes for larger groups.

Methods & Procedures

This randomized controlled trial (RCT) design had three groups: dyads (2 participants), groups (6–8 participants), and delayed control. Forty-eight participants were recruited and randomly assigned to a group prior to initial testing. Participants were at least five-months post-onset of aphasia and were native English speakers.

Testing was completed pre-treatment (Time 1), post-treatment (Time 2), and at a six-week maintenance point (Time 3). Forty-two participants completed post-treatment testing; thirty-eight completed maintenance testing.

The testing battery included standardized tests of language impairment (Comprehensive Aphasia Test, Philadelphia Naming Test-Short Form, NAVS sentence production priming & verb naming subtests), two patient-reported outcome measures (Lubben Social Network Scale-6 & Aphasia Communication Outcome Measure/A-COM), and three speech samples (Cinderella, CAT rescue, and stroke story). The primary outcome measure is percent CIU, averaged across the speech samples.

Treatment was scheduled for two weekly 60-minute sessions for 10 weeks. Individual goals were developed for each participant based on the results of initial testing. Goals were addressed in the context of conversational group treatment. Five topics were generated and treated over the course of the 20 treatment sessions. During each session, picture and other supports were available and clinicians modeled use of multi-modality communication.

This proposal focuses on analyses of the standardized test data. Given the relatively small sample and degree of variability in the data, results of Mann-Whitney U-tests comparing pre-treatment to post-treatment and pre-treatment to maintenance are presented separately for each group. A Holm correction was used to correct for multiple comparisons.

Outcomes & Results

Results of standardized testing are in Table 1. The delay control group showed no significant changes over time. The dyads showed significant improvements from pre-treatment to post-treatment in repetition, CAT naming, and the VNT. Those changes were maintained 6 weeks later for repetition only. The large group showed significant improvements from pre-treatment to post-treatment in CAT naming and the A-COM. At maintenance testing, there were significant improvements in reading comprehension only, and only for the large group.

Conclusions

Findings from this RCT on aphasia conversation group treatment indicate that both treatment groups – but not the delayed control group - showed significant changes, indicating that conversation treatment effects changes in both measures of language impairment and quality of life. However, the results do not clearly favor the dosage or group dynamics hypotheses. It is interesting to note that dyads showed the most changes on measures of language impairment, whereas changes on the quality of life measure (ACOM) only showed significant changes in the large group. Thus, it may be that group size is associated with effects on different types of outcome measures.

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Table 1.

Results of Standardized Testing.

Measure	Pre-Treatment			Post-Treatment			Maintenance (6 weeks)		
	Delay	Dyad	Large Group	Delay	Dyad	Large Group	Delay	Dyad	Large Group
Auditory Comp	48.8 (10.8)	43.0 (14.7)	48.6 (10.2)	53.4 [*] (11.1)	49.3 [‡] (13.9)	51.5 [‡] (10.8)	50.5 (9.3)	41.6 (20.8)	48.6 (10.0)
Reading Comp	45.6 (8.3)	40.0 (16.0)	44.1 (10.9)	44.5 (12.5)	42.5 (14.5)	45.3 (8.4)	45.6 (9.4)	35.8 [*] (20.6)	48.7^{**} (7.6)
Repetition	48.1 (19.1)	41.8 (24.6)	54.4 (14.9)	55.3 (13.8)	51.7^{**} (19.7)	58.9 (14.1)	49.5 (19.0)	45.9^{**} (24.1)	54.5 (14.8)
Naming	52.0 (21.8)	41.2 (27.5)	50.8 (22.4)	55.1 (23.3)	52.1^{**} (26.0)	55.3^{**} (22.8)	52.2 (18.5)	44.0 [*] (29.2)	54.7 (23.0)
Oral Reading	42.1 (18.0)	33.6 (24.4)	45.6 (17.9)	43.5 (18.7)	35.4 (26.3)	45.7 (19.1)	43.7 (18.2)	33.8 (25.0)	46.9 (20.0)
SPPT	14.1 (11.7)	10.5 (10.9)	12.4 (12.2)	14.6 [*] (11.5)	12.2 [*] (11.5)	13.1 (11.1)	12.0 (11.5)	10.1 (11.5)	12.2 (13.1)
VNT	15.1 (5.6)	11.0 (8.1)	15.9 (6.7)	15.1 (5.9)	13.1^{**} (8.7)	16.5 (6.0)	16.2 [‡] (5.9)	11.6 (8.6)	16.5 (6.1)
PNT	22.4 (6.6)	16.0 (12.8)	23.2 (8.0)	23.5 (6.8)	21.2 (10.3)	23.7 (6.6)	23.6 (7.1)	19.0 (12.7)	24.5 (7.1)
Lubben	16.4 (8.1)	18.2 (7.9)	16.8 (6.2)	15.5 (6.7)	17.4 (7.0)	16.0 (6.2)	16.5 (6.3)	16.3 (6.2)	16.7 (6.0)
ACOM	51.2 (8.6)	47.7 (10.4)	48.7 (8.5)	52.2 (9.4)	50.0 (9.4)	52.9^{**} (9.4)	54.1 (8.0)	50.9 [*] (7.4)	52.6 [*] (10.4)

^{**}
p<.017

^{*}
p<.05

[‡]
p<.10. Notations at Time 2 indicate differences between Time 1 and Time 2. Notations at Time 3 indicate differences between Time 1 and Time 3. Only bolded values are significant after a Holm correction. Results are mean (standard deviation).