Assessing Game Therapy for Aphasia: a New Approach to Aphasia Rehabilitation

Cristina Romani, Asma Jebril, Sabira Dewji, Andrew Olson, Nick Cox and Louise Lander

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Romani, Cristina[1,] principal investigator, Jebril, Asma, master student;[1] Dewji, Sabira, master student;[1] Olson, Andrew collaborator [2] Cox, Nick, collaborator [3]; Lander, Louise, clinical lead [3]

[1] *School of Health and Life Sciences, Aston University, Birmingham, United Kingdom.*
[1]*Department of Psychology, University of Birmingham, Birmingham, United Kingdom*
[3] *Moor Green Outpatient Brain Injury Unit, Birmingham Community Healthcare NHS Foundation Trust, Birmingham, United Kingdom.*

Address correspondance to Cristina Romani, Romani@Aston.ac.uk

Introduction

The delivery of effective speech and language therapy for people with aphasia (PWA) is challenged by limitation in the resources available to national health systems and by the negative interaction of language and emotional difficulties in PWA (Fama, & Turkeltaub, 2014; Marshall, 2008; Stahl et al., 218). Romani et al. (2019) have recently provided evidence in support of a new approach which addresses these issues by incorporating therapy into social, team games. This study develops this approach by: 1. Making the therapy more fun Incorporating the exercise into proper board-games; 2. Making the therapy more functionally-relevant focusing on everyday communicative scenarios (at the café, doctor, clothing store etc.); 3. Increasing inclusivity by incorporating more diverse exercises appropriate to participants with different kinds of impairment.

Methods

We used two kinds of board-games: 1. A naming game involving: naming pictures, guessing picture names from descriptions, and forming sentences; 2. A scenario game based on interacting with another participant in an everyday situation (six different boards with different scenarios see Figure 1 for an example). Each team moved a counter across the board to reach a finishing line. Depending on the slot on which the counter landed, different kinds of cards had to be picked, instructing different exercises. Points to move the counter were awarded based on how well the exercise was completed and on the throw of a dice (to add an element of luck). The games were played for two hours, three times a week, for eight weeks (48 hours in total).

Participants' inclusion criteria were: being at least 6-months post stroke; Completion of SLT in the NHS; Performance in BNT <60% correct; No additional neurological or psychiatric disorders; No severe perceptual or cognitive deficits. Six participants played the games split into two teams of three participants each.

Linguistic outcomes were assessed with the same stimuli practiced in therapy; with related, but different materials; and with unrelated materials. Wellbeing was assessed with the Communication Confidence Rating Scale for Aphasia (CCRSA); the Stroke Aphasic Depression Questionnaire (SADQ-10) and the Stroke and Aphasia Quality of Life Scale-39 (SAQOL39)

Results

All participants showed significant gains in most linguistic measures. Group results are shown in Table 1. Gains were maintained when participants were re-assessed after 6 weeks. Similar gains were made by a second cohort of participants whose therapy programme could not be completed because of the Pandemic. Quality of life, mood, and confidence all showed gains although group difference in confidence did not reach significance.

All participants showed excellent engagement (92% attended sessions), very high levels of satisfaction with therapy and a preference for game therapy over individual therapy.

Conclusions

Team-game therapy is a promising and effective new approach. It is economical in terms of resources since a single facilitator can support a whole group of PWA, and it addresses at the same time linguistic and emotional difficulties by carrying out the therapy in a relaxed environment where participants support each other.
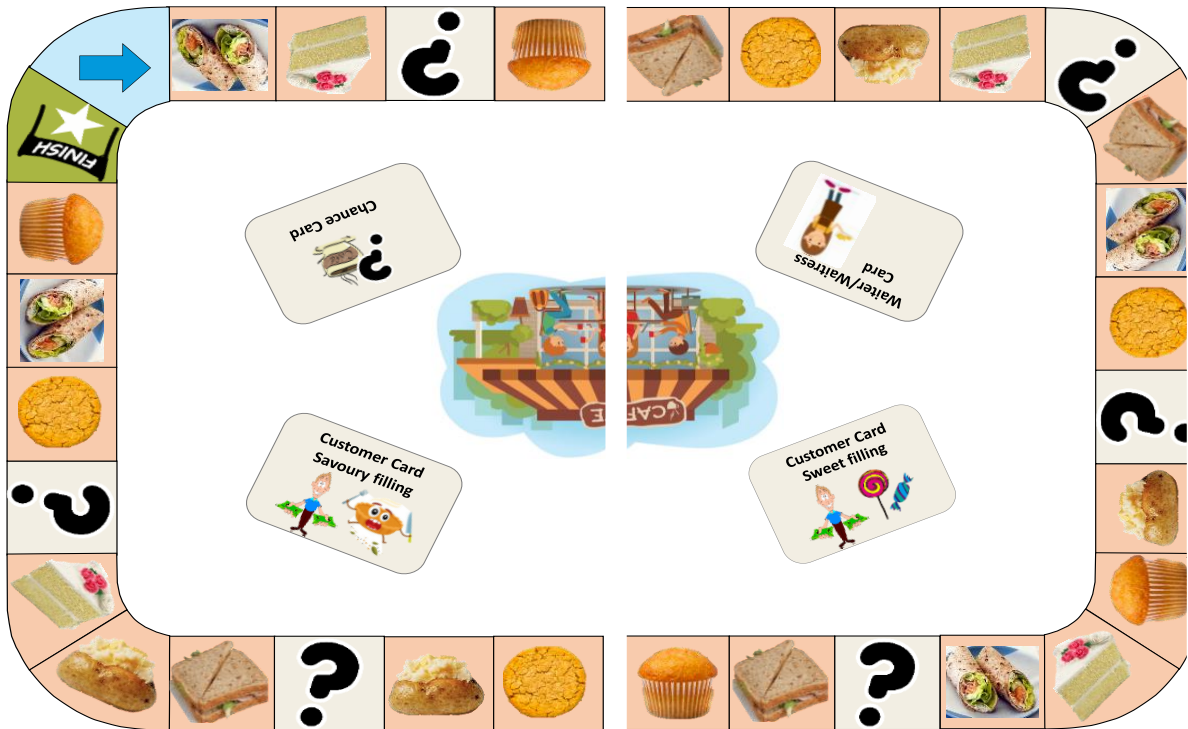
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Figure 1: Example of one of the scenario games; the participant has to ask for the food depicted on the slot he/she has landed on with the addition of what is depicted on the card he has picked; a team member has to take the order and suggest drinks based on what depicted on a waiter/waitress card s/he has picked.

EXAMPLE of BOARD 'AT THE CAFÉ'

EXAMPLES OF CARDS

Customer Card – Sweet filling	Customer Card – Savoury filling	Waiter/Waitress Card	Chance Card

I would like a
slice of cake
muffin
cookie WITH

I would like a
jacked potato
wrap
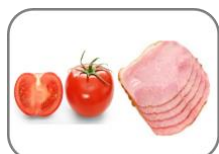sandwich WITH

Wold you also
like a

Table 1. Linguistic outcome of therapy in terms of group performance before and after therapy; Sentence score - complete sentence =1, partial = 0.5; CIU = correct information units measuring meaningful speech; Significance of difference in terms of paired, one-tailed t-tests for group means; where * p < .05, ** p < .01.

N words=240 from both naming and scenario games	Baseline		After therapy		Diff from base line		Maintenance		Diff from base line	
	Mean	SD	Mean	SD			Mean	SD		
	40.3	9.9	59.2	16.1	19	**	54.3	15.1	14	**

NARRATIVES RELATED TO NAMING GAMES

(Scene descriptions eliciting practiced words)

N words = 120 From naming game	Baseline		After therapy		Diff from baseline		Maintenance		Diff from base line	
	Mean	SD	Mean	SD			Mean	SD		
Sentence score	5.1	4	7.4	5	2.3	**	7.8	4.5	2.7	**
Mean N of words	58.8	26.2	80.2	31.4	21	**	97.4	41.8	38.6	**
% CIU/N words	73.8	13.4	80.7	17.2	6.9	*	83.2	8.7	9.4	**
% errors/N words	17.1	10.7	13.6	11.6	-4	**	12.9	10.9	-4.2	**
words per minute	16.8	8.6	14.8	7.3	-2	*	18.8	9.5	2	**

UNRELATED NARRATIVE (Dinner Party)

	Baseline		After therapy		Diff from base line	
	Mean	SD	Mean	SD		
Sentence score	6.1	3.6	12	6.5	5.9	**
Mean N of words	100.2	38.6	147.8	86	48	*
% CIU/N words	73.3	14	91.1	3.6	18	*
% errors/N words	14.7	7.6	7.5	3.2	-7	*
words per minute	25	13.6	27.5	11	2.5	ns