Prophylaxis of Anomia in Primary Progressive Aphasia: Lexical and Semantic Treatments

Aaron Meyer, Sarah Snider, Donna Tippett, Ryan Saloma and
Rhonda Friedman

Prophylaxis of Anomia in Primary Progressive Aphasia: Lexical and Semantic Treatments

Aaron M. Meyer[1][*], Sarah F. Snider[1], Donna C. Tippett[2], Ryan Saloma[1], and Rhonda B. Friedman[1]

[1] Department of Neurology, Georgetown University Medical Center, Washington, DC, United States
[2] Department of Neurology, Johns Hopkins University School of Medicine, Baltimore, MD, United States

[*]**corresponding author, aaron.meyer@georgetown.edu**

Introduction

Unlike the gradual improvement that is associated with recovery in post-stroke aphasia, primary progressive aphasia (PPA) involves a progressive decline in language functioning. Treatment programs that delay the progression of anomia could have a large impact on the lives of persons with PPA. Currently, there is little evidence that a particular type of treatment is more effective within a given subtype of PPA. In a recent group study, phonological and orthographic treatments were both effective in the prophylaxis of anomia in all three variants of PPA (Meyer, Tippett, Turner, & Friedman, 2019). In the current study, phonological and orthographic treatments were combined into a single lexical treatment, which was compared with an error-reduced version of semantic feature analysis (Reilly, 2016).

Methods

Twenty individuals with an identifiable subtype of PPA participated. At baseline, participants named two sets of pictures, which represented the same items: Exemplar 1 (utilized during treatment); and Exemplar 2 (never trained). Items consistently named correctly at baseline were selected for prophylaxis.

In the lexical treatment condition (LTC), participants viewed a pictured noun or verb, which was followed by the word's orthographic and phonological features in written and auditory form, and each participant was instructed to write the word. The word (in written and auditory form) was then presented with the picture, and the participant was asked to read/repeat the word. In the semantic treatment condition (STC), participants viewed a pictured noun or verb, and the word's semantic features were presented in written and auditory form. The word (in written and auditory form) was then presented with the picture, and the participant was asked to read/repeat the word. The untrained condition included items that were matched with LTC or STC.

During the first month of treatment, there were two sessions per week. Each session included both types of treatment. During the subsequent five months, one treatment session occurred per month, and shorter home practice sessions occurred two times per week. The post-treatment evaluation began one month after the end of the home practice period. Data analysis focused on naming accuracy for the untrained exemplar (Exemplar 2).

Results

All 20 participants had prophylaxis items for nouns, while 17 of these participants had prophylaxis items for verbs. At 1 month post-treatment, there were no significant differences between the treatment effects for LTC and STC within any subtype. At the group level, compared to untrained items, naming accuracy was significantly higher in LTC for nouns, and it was significantly higher in both LTC and STC for verbs.

Conclusions

The findings of this study suggest that lexical and semantic treatments have similar levels of efficacy within each subtype of PPA. However, semantic treatment may be less effective for noun prophylaxis items. One possible explanation for this finding is that semantic knowledge for noun prophylaxis items is intact at baseline and remains intact over time, while semantic knowledge for verb prophylaxis items is already impaired at

baseline, or it is more likely to decline over time.

References

Meyer, A. M., Tippett, D. C., Turner, R. S., & Friedman, R. B. (2019). Long-Term maintenance of anomia treatment effects in primary progressive aphasia. *Neuropsychological Rehabilitation, 29,* 1439-1463.

Reilly, J. (2016). How to constrain and maintain a lexicon for the treatment of progressive semantic naming deficits: Principles of item selection for formal semantic therapy. *Neuropsychological Rehabilitation, 26,* 126-156.
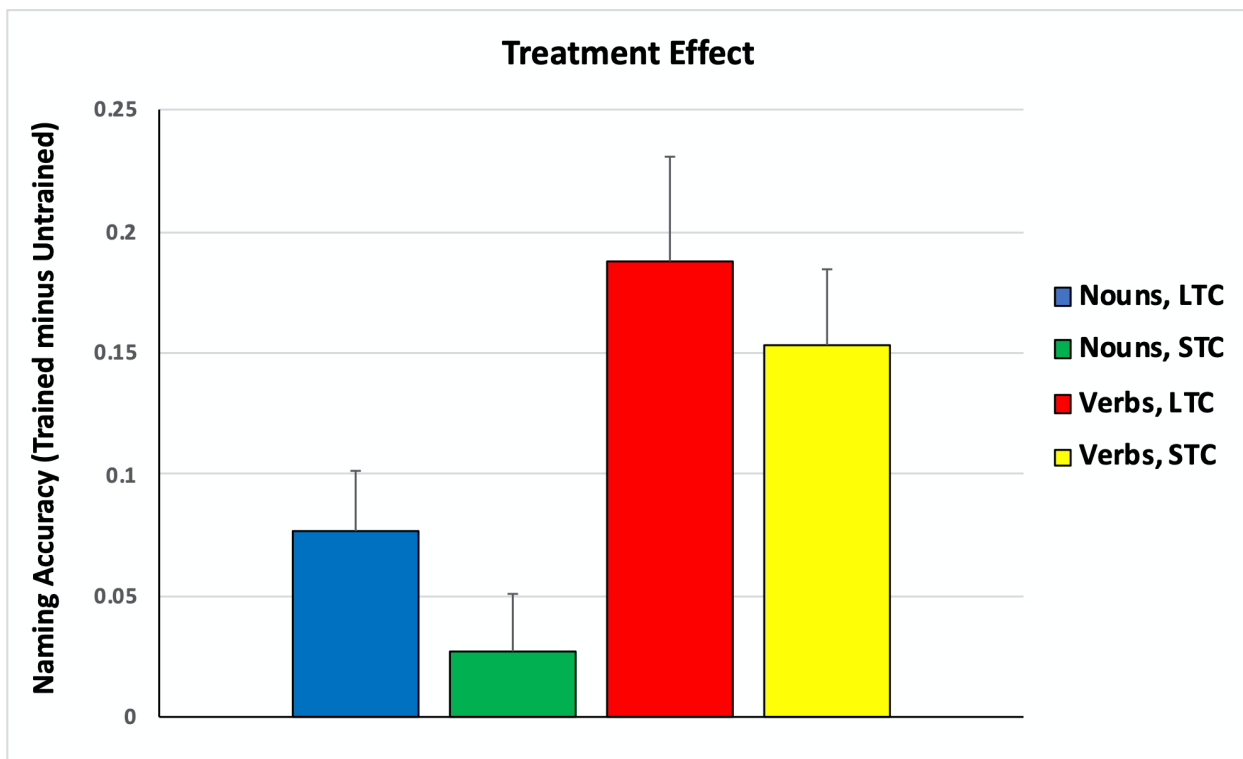
Figure 1. LTC: Lexical Treatment Condition. STC: Semantic Treatment Condition.