INTRODUCTION

The corpus of bilingual aphasia literature is treated to single subject designs.

Multiple subject designs are more useful because they enable researchers to discuss results that apply to a group of subjects rather than just an individual.


With the use of models we can better understand how the individual factors of pre-morbid language proficiency relate to language-semantic impairment and recovery in bilingual aphasia.

The current study’s limitations do not allow for in-depth analysis of post-injury language impairment. (Devy, 2005).

OBJECTIVES

1. Examine the degree of lexical and semantic processing impairment at different levels within language processing.

2. How does post-morbid language proficiency in each language influence post-stroke lexical and semantic deficits in each language?

3. Are there distinct subgroups by which we can categorize these aphasic patients?

METHODS

Language Use Questionnaires:

- Educational History
- Age of Acquisition
- Post-Stroke Current Exposure
- Language Use
- Confidence

* Bolded variables selected for subsequent analysis.

Language Tests:

1. Bilingual Aphasia Test (BAT), Boston Naming Test (BNT), Pyramids and Palm Trees Test (PAPT)
2. Spanish and English versions of the BAT, PAPT, and Boston Naming Test (BNT)

PARTICIPANTS

- 19 Spanish-English aphasic patients recruited from Austin, TX and Boston, MA.
- All patients were speakers of Spanish and English before stroke.
- Education levels ranged from elementary school to college level.
- 11 females, age range 33-86 years (average = 63.1, SD = 15.8)
- 8 males, age range 37-77.2 years (average = 54.4, SD = 14.6)

OBJECTIVES

1. What is the nature of language impairment based on standard language assessment?

- A Pearson pairwise correlation was performed to identify significant connections between diagnostic scores which represent specific levels of our framework of language processing in bilingual aphasia.

Question 1: What is the nature of language impairment based on standard language assessment?

Framework of Bilingual Language Processing. All p-values: 0.05

2. How does post-morbid language proficiency in each language influence post-stroke lexical and semantic deficits in each language?

- All correlations are bidirectional; blue lines represent corresponding levels of the framework.
- BAT $\leftrightarrow$ English Semantics acts like an anchor that drives translation: the expressive language system places more reliance on Semantics English compared to Semantics Spanish. It plays a more significant role in the recovery process, compared to Spanish, of all of which is stronger.

Question 2: How does post-morbid language proficiency in each language influence post-stroke lexical and semantic deficits in each language?

3. Are there distinct subgroups by which we can categorize these aphasic patients?

- We predict that we will find patterns between pre-stroke LAR and post-stroke LAR.

Question 3: Are there distinct subgroups by which we can categorize these aphasic patients?

RESULTS

Question 1: What is the nature of language impairment based on standard language assessment?

- A Pearson pairwise correlation was performed to identify significant connections between diagnostic scores which represent specific levels of our framework of language processing in bilingual aphasia.

Framework of Bilingual Language Processing. All p-values: 0.05

Question 2: How does post-morbid language proficiency in each language influence post-stroke lexical and semantic deficits in each language?

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Question 3: Are there distinct subgroups by which we can categorize these aphasic patients?

CONCLUSIONS

1. We have developed a theoretical framework of bilingual language processing based on language deficits from Spanish-English aphasic patients.

This framework reveals that the expressive language system uses the level of BAT English Semantics as an anchor to complete linguistic tasks such as translation.

2. Our findings indicate that pre-stroke LAR is a predictor of post-stroke performance on BAT Comprehension and BAT Semantics.

3. We identify patterns of language impairment across languages within a bilingual brain which will aid clinicians in the diagnosis and targeting of on-going language treatment programs.

- $A)$ Differential pre-stroke LAR, equal language loss
- $B)$ Equivalent pre-stroke LAR, equal language loss
- $C)$ Differential pre-stroke LAR, unequal language loss

Indications

- Impairment trends are independent from a patient’s pre-morbid dominant language or first language status.

- Our findings based on Spanish-English bilingual aphasic brains can be extended to bilingual populations with other language combinations.

SELECTED REFERENCES


ACKNOWLEDGEMENTS

We thank all of our patients and their families for their time and participation in the study. We also extend our gratitude to the members of the Aphasia Research Laboratory for their steadfast support and invaluable feedback.