Assessment and Treatment Practices for Clients with Bilingual Aphasia: A Systematic Review
Andie Brandt, Meg Dondero, and Michaela Johnson
Division of Speech and Hearing Sciences, The University of North Carolina at Chapel Hill

BACKGROUND
Approximately 47 million people in the United States speak a language other than English at home (Centeno, 2009). This number will likely rise in the future, as minority populations gradually increase. Unfortunately, minority populations tend to have a higher incidence rate of stroke than their white counterparts, impacting swallowing, speaking, and cognition. Nearly 88% of 400 SLPs respondents to a survey regarding bilingualism in the healthcare field stated that they currently work with bilingual patients in a hospital or rehabilitation setting. Aphasia was the most encountered diagnosis with 46% of the respondents indicating they have worked with someone who has bilingual aphasia (Centeno, 2009).

OBJECTIVES
Our goal was to find out what is currently happening in the healthcare field and what needs to be improved as SLPs begin to serve more and more people with bilingual aphasia. Our questions were:

- What are the current practices for assessment and intervention for adults with aphasia who are bilingual?
- What are the impacts of interventions?

DISCLOSURES/ACKNOWLEDGEMENTS
We have no intellectual or financial conflicts of interest. We would like to acknowledge the work of Jessica Dickoto, PhD, CCC-SLP, and Thomas Page, PhD, CCC-SLP, on their work reviewing and revising our presentation.

References available upon request.

RESULTS

- Reliability was conducted on 20-30% of articles on each step with 94-96% agreement.
- 30 case studies were excluded in the final step due to their varying levels of evidence, ungeneralizable nature, and varying methods or procedures.
- We found all five articles to be of good quality.
- Four studies were found regarding therapy (see chart) and one study was found regarding assessment (see below):

Assessment Findings:
According to Roger & Code (2011):

- Content validity is severely affected due to syntactic changes and disconnects of meaning when using a translator during the assessment process.
- The WAB was used in this study as it was found in recent studies to be one of the most commonly used (Katz et al 2000; Bate et al, 2010); however, it must be translated by the interpreter causing length and complexity changes automatically.

DISCUSSION

- Variables suggested to have a possible impact on therapy outcomes:
  - age of acquisition
  - proficiency in both languages pre- and post-stroke
  - current and previous language environments
  - treatment language(s)
  - intervention type and focus

- Patterns of recovery and generalization are highly varied (see chart).

Current theory of generalization: Connections from L2 to L1 are stronger than L1 to L2 (Kroll & Stewart, 1994)

- Junque et al (1989) & Kiran et al (2013) found that recovery was better for L1 regardless of secondary factors (listed above).
- Kiran & Roberts (2010) and Croft et al (2011) found no differences or varied results.
- Croft et al (2011) focused on the usefulness of phonological versus semantic therapy methods and found no differences.
- Roger and Code (2011) recommend pursuing accreditation bodies for all healthcare interpreters requiring additional training in interpreting for language assessments.
- Without this accrediting body, SLPs should take the time to train their translators to account for some of these problems and avoid errors as possible.
- More research needed regarding:
  - Efficacy of different therapy methods
  - The assessment process for people with bilingual aphasia
  - The role of the variables listed above on therapy outcomes

Systematic review limitations: a lack of information regarding non-English articles, no search of grey area literature, and the exclusion of case studies.

METHODS

<table>
<thead>
<tr>
<th>Databases</th>
<th>Search Terms</th>
<th>Inclusion Criteria</th>
<th>Exclusion Criteria</th>
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<tbody>
<tr>
<td>All searches concluded prior to January 2019 on these databases: PubMed, Global Health, Cochrane Library, PsychInfo, CINAHL Plus</td>
<td>(Aphasia OR Broca's OR Wernicke's) (Bilingual* OR multilingual* OR &quot;dual language&quot; OR &quot;multiple languages&quot; OR bi-lingual* OR multilingual*) (Outcome* OR treat* OR manage* OR intervention OR program OR technique* OR therap* OR assess* OR evaluati*)</td>
<td>a) Adults over 18 years old that had any type of aphasia (Broca's, Wernicke's, etc.) with any severity of aphasia (mild to severe) who self professed that they spoke any two or more languages Peer-reviewed original research articles.</td>
<td>a) People with Primary Progressive Aphasia (PPA) b) People with dementia c) Monolingual people d) Clients with previous (pre-stroke) intellectual disability or communication disorder e) Peer-reviewed original articles not in English f) Systematic reviews g) Book chapters h) Case studies</td>
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RESULTS (CONT.)

<table>
<thead>
<tr>
<th>Title</th>
<th>Author (Year)</th>
<th>Intervention type</th>
<th>Number of Participants/ 1st language</th>
<th>Number of Participants/ 2nd language</th>
<th>Current Language Environment</th>
<th>Therapy Results and Outcomes</th>
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<tbody>
<tr>
<td>Semantic feature analysis treatment in Spanish-English and French-English bilingual aphasia</td>
<td>Kiran, S., &amp; Roberts, P.M. (2010)</td>
<td>Semantic Feature Analysis (SFA)</td>
<td>4 - English</td>
<td>4 - English</td>
<td>Cross-language generalization only</td>
<td>Significant results: Trained teachers - 4 participants Within-language generalization - 3 participants Cross language generalization - 1 participant Cross language generalization to semantically related items - 1 participant Varied levels of generalization and patterns without any consistency across participants</td>
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<td>Differential recovery in naming in bilingual aphasics</td>
<td>Junque, C., Vendrell P., &amp; Vendrell-Brunet, J. (1989)</td>
<td>Standard Language Therapy</td>
<td>Catalan only</td>
<td>Catalan only</td>
<td>Baseline only</td>
<td>Catalan with Family / Spanish at work / Current prof. unknown</td>
</tr>
<tr>
<td>Rehabilitation in bilingual aphasia: Evidence for within- and between-language generalization</td>
<td>Kiran, S., Sandberg, C., Gray, C., Ascenso, E., &amp; Kester, E. (2013)</td>
<td>Semantic Feature Analysis (SFA)</td>
<td>Spanish and English</td>
<td>Spanish and English</td>
<td>Cross-language generalization to the translations of trained items - 5 participants Between-language generalization to the translations of the untrained semantically related items - 6 participants</td>
<td>All participants gained in Catalan the most Both languages saw improvement despite only one language used in therapy (Catalan).</td>
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<tr>
<td>Therapy for naming difficulties in bilingual aphasics: Which language benefits?</td>
<td>Croft, S., Marshall, J., Pring, C., &amp; Hardwick, M. (2011)</td>
<td>Semantic and phonological tasks</td>
<td>5 - Bengali</td>
<td>5 - Bengali</td>
<td>Multiple language</td>
<td>Neither language gained more than the other regardless of dominant language. Semantic &amp; phonological based treatments found to be of equal benefit. Cross-linguistic generalization only occurred for participants when therapy was given in their dominant language and engaging semantic processing, not phonological. Co-workers administered therapy in Bengali and an SLP in English.</td>
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RESOURCES

- Evidence for efficacy of different therapy methods
- The assessment process for people with bilingual aphasia
- The role of the variables listed above on therapy outcomes
- Systematic review limitations: a lack of information regarding non-English articles, no search of grey area literature, and the exclusion of case studies.

CONCLUSIONS

- What are the current practices for assessment and intervention for adults with aphasia who are bilingual? What are the impacts of interventions?