Introduction

Aphasia is a neurological disorder caused by damage to various cerebral areas associated with language. Approximately 1 million people in the United States are currently affected by aphasia[1]. Although there is a wide range of variability in the condition, the patterns of impairment revolve around language comprehension and/or language production. According to the National Institute of Neurological Disorders and Stroke, patients are much more likely to recover skills in language comprehension than those involving expression.

Fluent language production requires coordination of all levels of language processing, from recognition of speech sounds to producing utterances having both meaning and relevance to the given context. Measures of fluency in aphasia attempt to capture these various levels of language processing in terms of semantic and syntactic content, grammatical form, and rate of speech.

Examine the behavioral and neural correlates of fluency in aphasia by evaluating archival data from 31 individuals with chronic aphasia following left hemisphere stroke.

Methods & Materials

Subjects
Archival data was compiled from Moss Aphasia Psycholinguistics Project Database (MAPPD), including measures of overall aphasia severity, word-level recognition and production, sentence comprehension, and location and size of lesion.

Methods of Fluency Analyses:
1. Correct Information Unit (CIU) analysis: characterizes semantic features
2. Quantitative Production Analysis (QPA): characterizes grammatical features

Conclusions

These QPA fluency measures were highly correlated with word-level semantic production, but not with sentence comprehension. Areas in red indicate level of significance - the bars from right to left represent p > 0.5, p > 0.01, p > 0.005.

Results

2. QPA measures correlate with word-level semantic production, but not sentence comprehension

Areas in red indicate level of significance - the bars from left to right represent p > 0.5, p > 0.01, p > 0.005.

Results

1. CIU measures are highly correlated with one another (r > 0.8, p << 0.001), as well as with QPA words per minute measure (r > 0.75, p << 0.001)

References


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(Broca’s)

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Behavioral and Neural Correlates of Fluency Deficits in Aphasia