

## ABSTRACT

### Predictors of Speech Severity and Sentence Intelligibility for Speakers with Multiple Sclerosis

L. Feenaughty

Purpose: This study sought to identify speech production variables that predict sentence intelligibility scores and listener judgments of Speech Severity, among 48 individuals with multiple sclerosis and 12 controls.

Method: A total of sixty speakers were audio-recorded producing spontaneous speech and sentences from the *Speech Intelligibility Test* (SIT). Ten listeners judged Speech Severity using a computerized visual analog scale for the spontaneous speech samples. Using SIT software, three certified speech-language pathologists orthographically transcribed 11 sentences to obtain estimates of intelligibility. Various acoustic, cognitive, and psychosocial measures were obtained and served as predictor variables in linear stepwise regression analyses. Correlation analysis quantified the relationship between sentence intelligibility scores and Speech Severity.

Results: Sentence intelligibility scores and judgments of Speech Severity were moderately correlated. Separate regression models revealed that mean silent pause duration and proportion of grammatical pauses were the best predictors of Speech Severity judgments for spontaneous speech, while only silent pause duration predicted sentence intelligibility scores.

Conclusions: Results suggest that pause characteristics partially explained Speech Severity judgments and seem to support prior studies suggesting that the perceptual construct of Speech Severity may be sensitive to aspects of speech impairment in multiple sclerosis, not detected by sentence intelligibility scores.