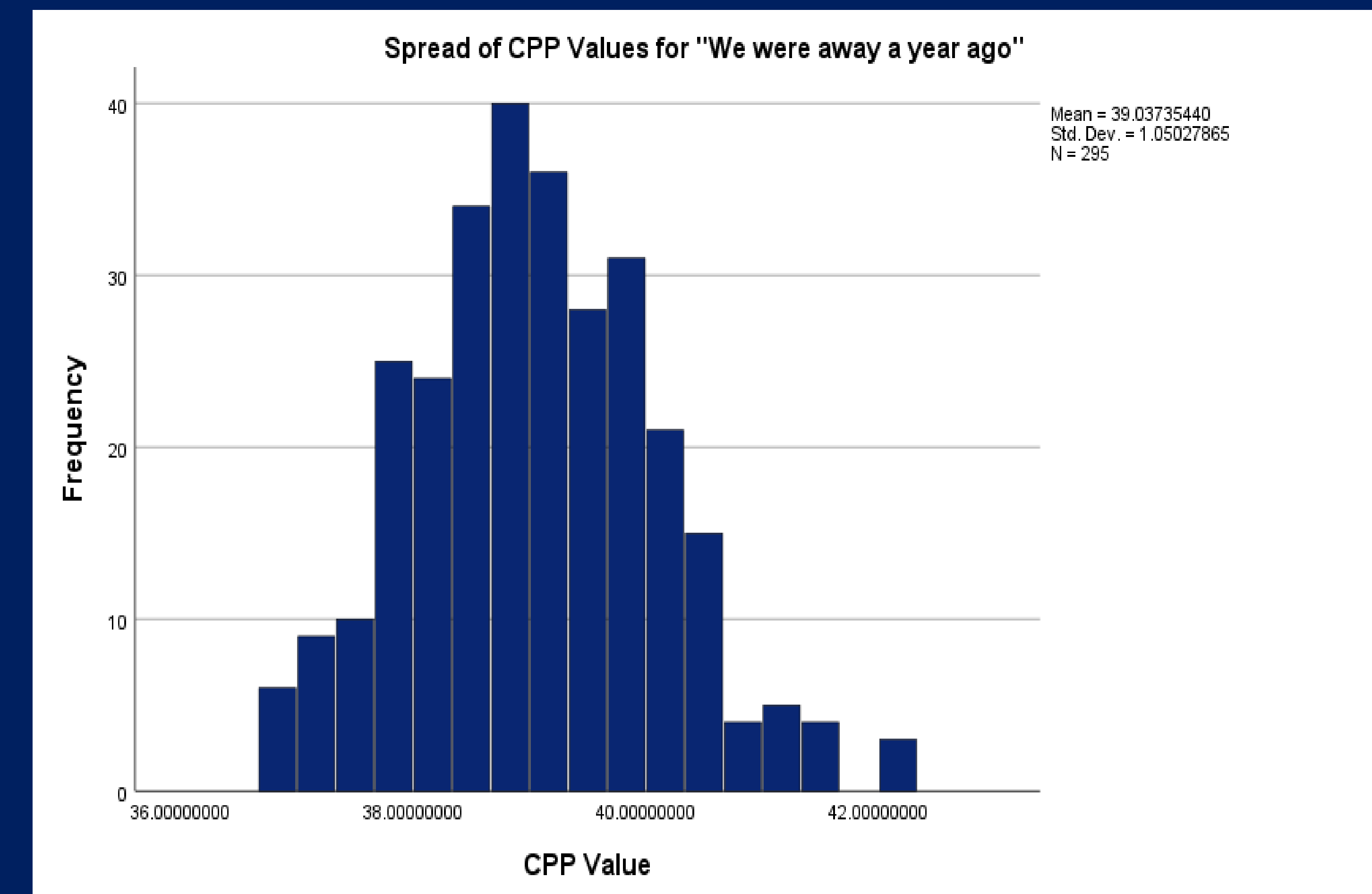
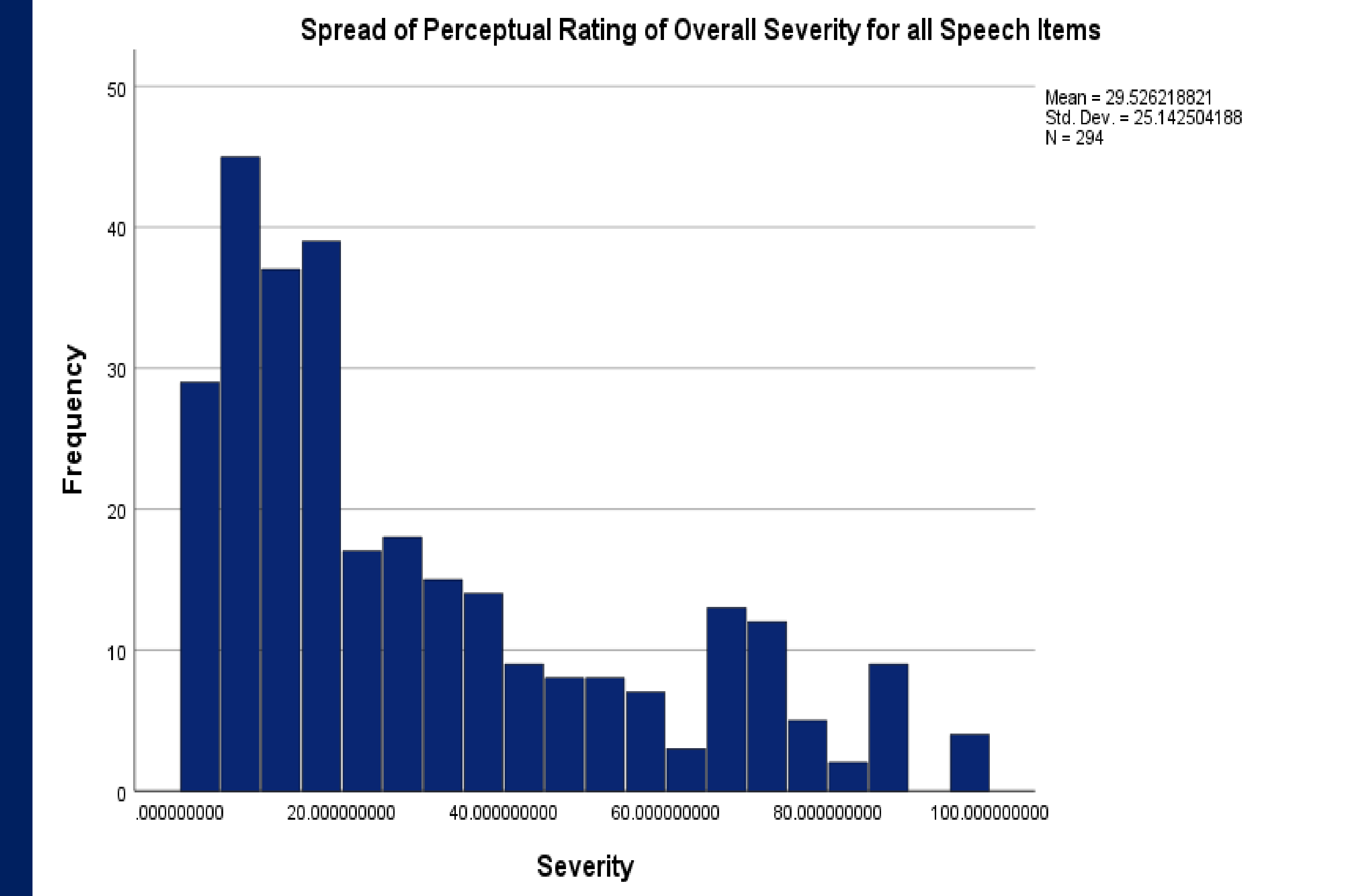


## Introduction

- Typical methods for eliciting voice during the clinical voice evaluation require the use of speech samples which are varied in their phonetic contexts.
  - These same speech samples are often acoustically analyzed as part of voice evaluation methods.
  - One instrument used in clinical voice evaluation is the Consensus Auditory-Perceptual Evaluation of Voice (CAPE-V)<sup>1</sup>. The CAPE-V includes multiple sentences with varied phonetic contexts.
- Due to time constraints, speech-language pathologists often choose only one of the CAPE-V sentences to analyze acoustically.
  - It is unclear, however, which of the sentences may be the most useful in better understanding the characteristics of a voice disorder through acoustic analysis.
- We set out to investigate the relationship between the voice acoustic measure associated with clarity, known as Cepstral Peak Prominence (CPP), and the auditory-perceptual (how it sounds) measure of overall dysphonia severity in different phonetic contexts.

## Methods

- 294 voice samples from the *Perceptual Voice Quality Database (PVQD)*<sup>2</sup> were used to complete this study. The PVQD includes voice samples from adults with and without diagnosed dysphonia as they complete the CAPE-V speech samples.
- The PVQD is publicly available and has reported<sup>3</sup> a range of voice quality severities that were reliably measured. CPP measures were analyzed for this project using Praat<sup>4</sup> and a script developed by Murray and colleagues<sup>5</sup>. All parts of the speech sample were used in analysis.
- The relationship between CPP values for all CAPE-V speech stimuli and the auditory-perceptual rating of overall severity was determined through the use of Pearson Correlations. Further, the CPP values were used as predictor variables in a linear regression analysis to predict overall severity.



## Results

- Pearson Correlations showed a weak negative correlation between auditory-perceptual rating for severity and the CPP value for prolonged vowel /a/.
- All other utterances, except for prolonged /i/, were moderately negatively correlated. /i/ was not significantly correlated.
- **Regression analysis showed only one utterance's CPP value to be predictive of auditory-perceptual severity rating: the all-voiced sentence, "We were away a year ago."**
- The regression model using the CPP value for the all-voiced sentence was only weakly predictive (adjusted R<sup>2</sup>=.148).

## Discussion

Only the all-voiced CAPE-V sentence, "We were away a year ago" was significantly predictive of overall voice severity. Although it was only weakly predictive, the all-voiced sentence is the most appropriate choice if clinicians are to acoustically analyze only one utterance from the CAPE-V

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2. Walden, P. (2020). Perceptual Voice Qualities Database (PVQD). 3. <https://doi.org/10.17632/9dz247gnyb.3>
3. Walden, P. R. (2020). Perceptual Voice Qualities Database (PVQD): Database Characteristics. *J. Voice*. <https://doi.org/10.1016/j.jvoice.2020.10.001>
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### Consensus Auditory-Perceptual Evaluation of Voice (CAPE-V)

Name: \_\_\_\_\_ Date: \_\_\_\_\_

- The following parameters of voice quality will be rated upon completion of the following tasks:
1. Sustained vowels, /a/ and /i/ for 3-5 seconds duration each.
  2. Sentence production:
    - a. The blue spot is on the key again.
    - b. How hard did he hit him?
    - c. We were away a year ago.
    - d. We eat eggs every Easter.
    - e. My mama makes lemon muffins.
    - f. Peter will keep at the peak.
  3. Spontaneous speech in response to: "Tell me about your voice problem." or "Tell me how your voice is functioning."

Legend: C = Consistent I = Intermittent  
MI = Mildly Deviant MO = Moderately Deviant  
SE = Severely Deviant

	MI	MO	SE	C	I	SCORE
Overall Severity	_____	_____	_____	_____	_____	____/100
Roughness	_____	_____	_____	_____	_____	____/100
Breathiness	_____	_____	_____	_____	_____	____/100
Strain	_____	_____	_____	_____	_____	____/100
Pitch	(Indicate the nature of the abnormality): _____			_____	_____	____/100
Loudness	(Indicate the nature of the abnormality): _____			_____	_____	____/100
	_____	_____	_____	_____	_____	____/100
	_____	_____	_____	_____	_____	____/100

COMMENTS ABOUT RESONANCE: NORMAL OTHER (Provide description): \_\_\_\_\_

ADDITIONAL FEATURES (for example, diplophonia, fry, falsetto, asthenia, aphonia, pitch instability, tremor, wet/gurgly, or other relevant terms): \_\_\_\_\_