Procedural Fidelity to the CAPE-V Among Voice Clinicians: A Comparative Analysis

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BACKGROUND

- The Consensus Auditory Perceptual Evaluation –Voice (CAPE-V; Kempster et al., 2009) was originally created to **standardize auditory-perceptual evaluation** of voice quality.
- This exploratory study examines: 1) how experienced voice clinicians describe the voice quality of speakers with a range of severity of dysphonia; in comparison to 2) how they notate and rate dysphonia severity on the CAPE-V.
- Data from one speaker are shown for comparison of verbal vs/ written observations and ratings.

METHODS

Stimuli

- CAPE-V sentences (n=4) & sustained vowel
- 6 female & 6 male speakers
  - 2 normophonic, 2 mild dysphonia, 6 moderate dysphonia, 2 severe dysphonia

Participants

- 20 voice clinicians with at least 3 years' experience evaluating voice

Task

- Rate the four primary dimensions of voice quality ("overall severity, breathiness, roughness, strain") on the CAPE-V scales and mark the form **as they normally would**.
- Describe the voice verbally.

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RESULTS

Written comments were less specific and sometimes different from verbal descriptions. Verbal descriptions of the severity of dysphonia did not always align with ratings, and the ranges of ratings sometimes exceeded 30mm (bottom of CAPE-V form vs. yellow bubbles).

Comments about pitch varied considerably (CAPE-V form, blue bubbles).

"That voice sounds like it went through a cheese grater, that's awful so I rated that very severe like an 89. Rough, breathy, strain. Harsh might be a good overall descriptive term... Poor thing."– P17, **OS rating 86**

"I put severity as 75, ... consistently bad....45 moderate inconsistent roughness..., 65 moderate-severe breathiness, consistent. Strain, 20, mild-moderate but inconsistent... that's probably a weaker voice and they're pushing..." – P13, **OS rating 75**

"This has got everything; Strain, and breathiness, and roughness and it's affecting their volume. ... breathiness and strain that makes the overall severity worse. So I might say 60 for each of these ." – P6, **OS rating 85**

Numerous descriptors were used in written comments (bottom of CAPE-V form).

"Sounds like some underlying neuro disease.... once they get going, the sound is okay so it's like the opposite of vocal fry. The beginning of the phrases tend to be more disordered than the end of the phrases or the end of the sustained sound." – P6, **OS rating 85**

"The first thing, the very first word of every sentence, then it's kind of fading out so I would say it's weak or asthenic."– P12, **OS rating 75**

"It almost sounds to me like this person is like trying to make her voice sound bad.... Like hearing it without knowing who this person is or what how she presents it sort of sounds like somebody who's like someone trying to be dysphonic on purpose " – P14, **OS rating 99**

Most marked C for all attributes, but for OS 10 circled C; 3 circled I; 7 circled nothing.

"I'm assuming that that's a woman and I would say that she is severely dysphonic... and her voice is characterized primarily by moderate strain and moderate breathiness, mild- moderate intermittent roughness.... her pitch was mild to moderately low if it is a woman ." – P11, **OS rating 92**

"I put pitch as normal.... That pitch to me, not abnormal. But I feel like you would think the pitch is abnormal because there's all these other abnormalities going on, but the pitch isn't ."– P13, **OS rating 75**

"She had some phonation breaks, like a burst of air, especially the first one. The sustained vowel broke to more voicing, more phonation so it became less breathy... and pitch instability." – P15, **OS rating 87**

"...moderately strained...mild-moderately rough, posteriorly focused, a little bit soft. I think of pitch as periodicity and if there's a lot of breathiness to it I feel like its kind of like noise to harmonics just kind of noisy and I always note that in pitch ." – P9, **OS rating 50**

"...kind of rough, breathy, strained, low pitched voice... I would say moderate to severe."– P7, **OS rating 63**

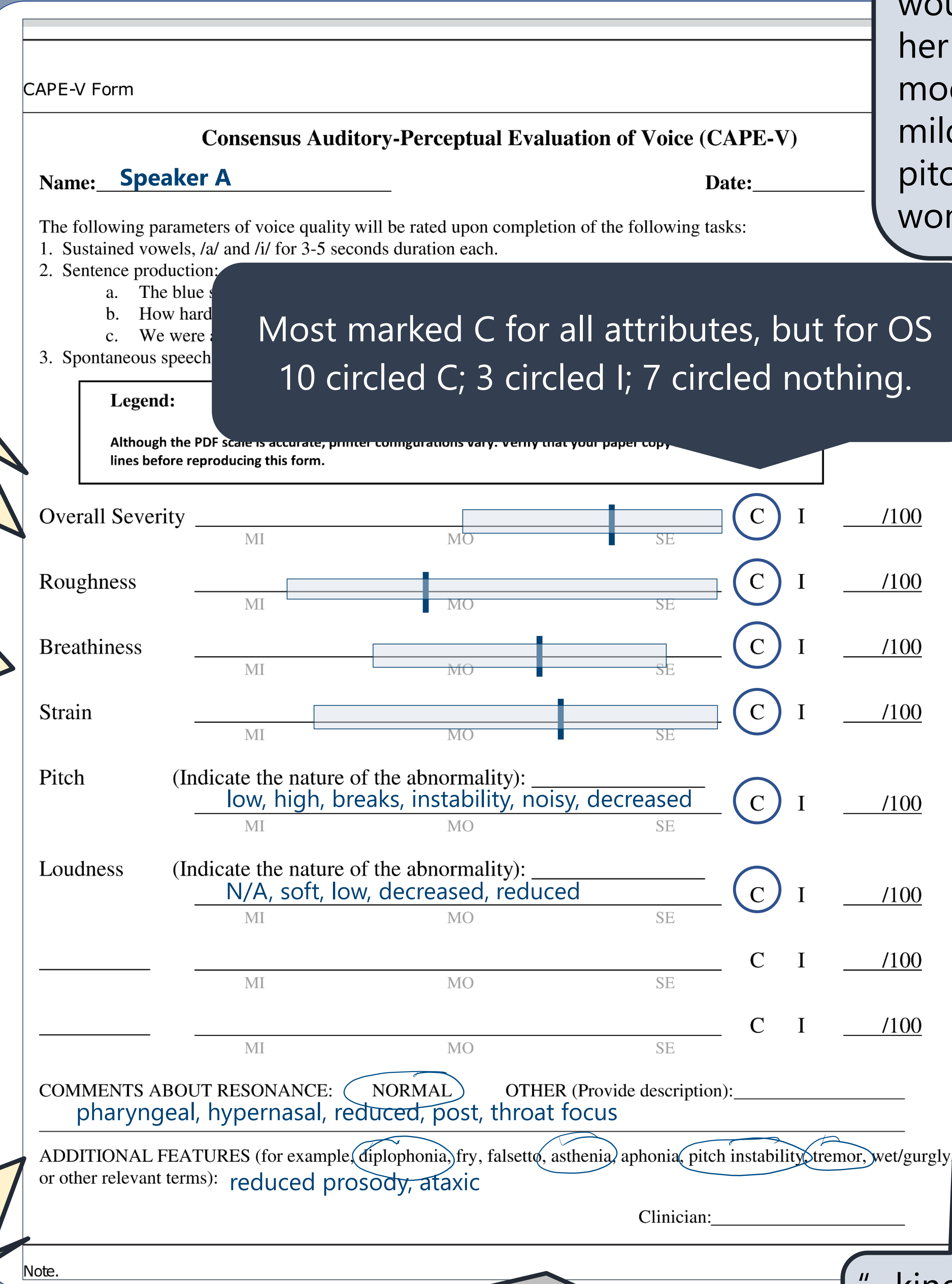One participant seemed to think the speaker might be faking (gray bubble).

Figure 1. Results for Speaker A. CAPE-V form marked up to show range of ratings, median ratings, majority marking of consistency and notes for each dimension. Bubbles show selected interview quotes and OS ratings by each participant. Ratings for Speaker A fell within the moderate-severe range (median 80mm) based on OS, with most raters reporting consistency across tasks for all parameters.

DISCUSSION

- Many clinicians did not mark features they later mentioned (e.g., consistency, pitch).
- Ranges of ratings were very large across dimensions, indicating reduced agreement among clinicians.
- Verbal and written comments indicated that clinicians recognized differing characteristics of voice quality as salient or deviant.

Review of how clinicians used the CAPE-V to rate the voice quality of a single speaker suggests that **consensus has not yet been achieved for how to use the CAPE-V protocol and that experienced clinicians focus on different aspects of quality when evaluating voice.**

REFERENCE

Kempster, G. B., Gerratt, B. R., Verdolini Abbott, K., Barkmeier-Kraemer, J., & Hillman, R. E. (2009). Consensus auditory-perceptual evaluation of voice: Development of a standardized clinical protocol. *American Journal of Speech-Language Pathology*, 18(2), 124–132.