Adult Normative Data for the OMNI-Vocal Effort Scale

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INTRODUCTION

People with voice disorders frequently complain of increased vocal effort. Patient reported outcome measures of voice quality of life do not capture this distinct symptom. Measurement tools used to establish vocal effort have included relative fundamental frequency (Stepp, Sawin & Eadie, 2012), direct magnitude estimation (Chang & Karnell, 1991) and the BORG scale (van Leer & van Mersbergen, 2017). The OMNI scales utilize the 10-point BORG scale and include activity specific pictures to determine the patient's perceived physical effort during an exercise task (Robertson, 2003). The OMNI-Vocal Effort Scale (OMNI-VES) was developed from the original OMNI scales and was validated to measure outcomes from botulinum toxin injections in the treatment of adductor spasmodic dysphonia (ADSD) (Shoffel-Havakuk, Marks, Morton, Johns & Hapner, 2019). The OMNI-VES has not been used as an outcome measure with dysphonias other than ADSD and has no established normative data. It is important to understand perceived vocal effort in adults who do not have dysphonia. The perception going into this study was that adults across the lifespan, without voice complaints, perceive little to no vocal effort in connected speech. Therefore, the purpose of this study was to establish normative data for the OMNI-VES for healthy adults without voice complaints.

METHODS

Study Design: Prospective data collection across groups

Methods: A nine item survey was administered by a speech-language pathologist (SLP), with specialization in voice, to consenting adults 18 years and older willing to participate in the study. Questions included age, history of voice problems, history of voice surgery, smoking history and hearing loss. Participants were instructed to rate their vocal effort in conversation using the OMNI-VES (see figure 1.0). Directions for participants were scripted as,

"Based on this scale, how much effort/ strain do you perceive when using your voice? Pick a number. "0" meaning its extremely easy to talk here (point to the larynx) and "10" meaning its extremely hard to talk here (point to the larynx), like you are lifting a heavy weight."

Exclusion criteria included: dysphonia perceptually identified by a SLP, vocal fry not stimulable for change, history of smoking and hearing loss.

A multivariant analysis was completed.

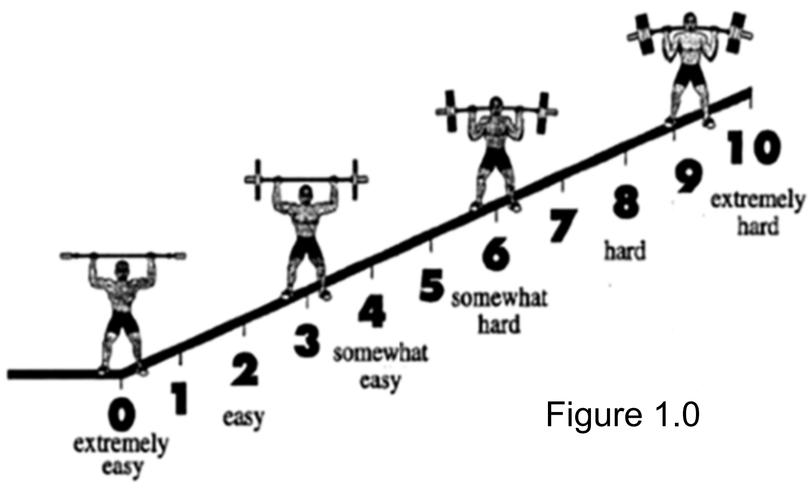

Figure 1.0

PARTICIPANTS

Two hundred and fifty-six adults (184 identified females and 72 identified males), ages 20-77 years were recruited. Participants were grouped by decade (Table 1.0) Stratification of participants by identified gender are found in Table 2.0.

Table 1.0

Age	No. of Participants
20-29	105
30-39	66
40-49	31
50-59	27
60-69	22
70+	5

Table 2.0

Age	Identified Female	Identified Male
20-29	86	19
30-39	43	23
40-49	22	9
50-59	20	7
60-69	11	11
70+	2	3

DISCLOSURES

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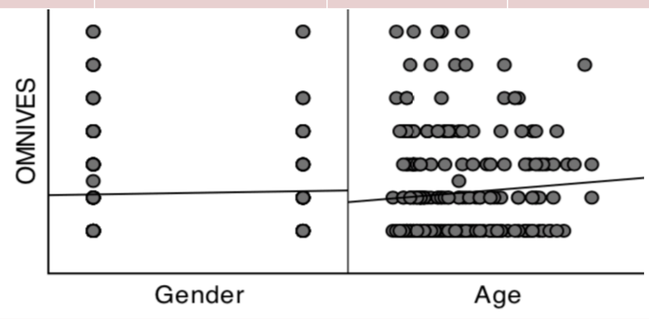
RESULTS

Results of a two-way ANOVA with post hoc comparison indicate there is no statistically significant age or gender effects on perceived vocal effort score (F = .829 , p = >.05).

OMNI-VES	Frequency	Percent	Cumulative Percent
0	127	49.6	49.6
1	52	20.3	69.9
2	30	11.7	81.6
3	28	10.9	92.6
4	8	3.1	95.7
5	6	2.3	98.0
6	5	2.0	100.0



DISCUSSION

This study represents the first set of normative values for perceived vocal effort for adults without voice complaints, using the OMNI-VES. The majority of the adults without voice complaints reported that producing voice was within the "extremely easy" to "easy" range, 0-3 (92.6%), thus confirming that adults without voice complaints do not perceive that voice is effortful during connected speech. The OMNI-VES was originally designed as an outcome tool for use with spasmodic dysphonia. This tool may have applications for use with other voice disorders. The results of this study indicate that there is a range of normal when using this scale and that outcomes post-therapy can either be reported as change in score from pre to post therapy and/or reported as within normal limits for non-dysphonic individuals (0-3).

Limitations: Participants did not undergo laryngeal examination to confirm the absence of pathology. The magnitude of difference of perceived vocal effort between numeric values is unknown. There are unequal distributions between age and identified gender groups.

CONCLUSIONS

The OMNI-VES may be a useful tool in understanding changes in perceived vocal effort as a result of treatment for voice disorders. Future directions are to examine the magnitude of difference between numeric values on the scale, the association of vocal effort by diagnosis and change in perceived vocal effort by treatment.

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