Exploring Personality and Perceived Present Control as Factors in Postsurgical Voice Rest: A Case Comparison

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Summary: Objective. This case comparison explored the relation between personality, perceived present control, and postoperative voice rest (as estimated by self-report and objective voice use) following surgery for benign vocal fold lesions.

Method. Two participants were included. Both participants were diagnosed with benign vocal fold pathology, underwent phonosurgery, and were assigned to either complete voice rest (CVR) or relative voice rest (RVR) postoperatively. During voice rest (VR), a visual analog scale (VAS) and a dosimeter (the Vocalog2) were used daily to estimate self-perceived and objective voice use, respectively. The participants also completed questionnaires on voice-related demographics, the Voice Handicap Index (VHI), Ten-Item Personality Inventory (TIPI), and Perceived Present Control (PPC). After 7 days of CVR or RVR, participants completed a postoperative questionnaire and a final VAS for overall voice use.

Results. A wide discrepancy was observed in one of two participant's subjective perception of voice use (using the VAS) versus objective dosimetry data wherein she reported significantly more voice use than was observed objectively. Differences in personality and PPC between the participants did not appear to affect their voice use following the VR protocols.

Conclusion. The amount of voice use in both VR protocols for these two participants suggests that personality and PPC did not affect their adherence to recommendations of VR. Patients may perceive their voice use differently across time, which might play a role in their adherence to voice rest recommendations: voice use measured as instances versus a unit of time (seconds).

Key Words: Voice rest−Phonosurgery−Personality−Perceived present control−Patient adherence.

INTRODUCTION

Benign vocal fold lesions and current treatments

Benign vocal fold lesions may manifest in the epithelium or vocal fold cover due to phonotrauma, injury, or secondary to infection, neoplasm, or other disease processes.[1] Examples of epithelial lesions include leukoplakia and papilloma, and lesions of the vocal fold cover include Reinke's edema, cysts, pseudocysts, granulomas, polyps, and nodules. These are the most common lesions seen in the treatment-seeking population.[2] Depending on the size, location, and duration of these lesion(s), they can adversely impact vocal quality due to irregular or incomplete glottic closure, vibratory changes, and maladaptive compensatory behaviors.[3] Voice quality changes may manifest in mild to severe roughness or breathiness or impact vocal pitch, loudness, and range. Voice production may also be associated with increased physical effort and fatigue. These changes in quality may disproportionately impact occupational voice users and those with high voice demands in social settings, due to increased vocal load.[3] This negative impact could then lead to loss of income, social withdrawal, and isolation, impacting the emotional health of the person with a voice disorder.[4]

Current treatment options for benign vocal fold lesions include surgical intervention and/or voice therapy. Surgical intervention includes the removal of the lesion(s) via cold steel or laser surgery. If surgery is recommended for the removal of these lesions, the prevention of vocal fold scarring is an important consideration. Poor healing from an injury can lead to permanent scarring. If it occurs at the medial edge of the vocal folds, it may affect the vibratory features of the vocal fold, leading to changes in vocal quality that can include diplophonia, pitch breaks, etc.[5,6] In order to prevent or reduce the incidence of scarring, physicians prescribe vocal rest following surgery.[7] Current literature suggests that voice rest is a necessary component of vocal fold wound healing, but evidence for specific recommendations and protocols for postoperative patients is lacking.[8]

In animal studies, avoiding voice use postinjury has been shown to facilitate vocal fold wound healing and prevents permanent changes in the vocal fold epithelial tissue.[9-12] Currently, there are no human studies that examine wound healing in the vocal fold epithelial tissue. This lack of evidence is due to numerous factors such as difficulty in examining human vocal fold tissue, environmental factors compounding the effects of voice use, and unreliable adherence to the prescribed recommendations.

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Voice rest (VR) recommendations in the absence of human studies are largely based on individual physician's preference, training, and experience. VR is typically divided into two categories: complete (CVR) and relative (RVR). CVR is the absence of voice use for the recommended duration of time including whisper, cough, or throat clear. RVR is defined differently amongst voice professionals. The overall duration varies and may include some duration of CVR, a specific amount of voice use daily, or performing certain vocal tasks.[7,13-17] Wound healing studies in the animal model have informed current recommendations of at least 3 days of CVR. Following these 3 days, either an additional 4 days of complete rest for CVR or 4 days of incremental voice use for RVR may be prescribed clinically.[13,18] The variations in recommendations and lack of standardization is problematic because its impact on postoperative outcomes is not yet completely understood.

Voice rest adherence

Few data are available on patient adherence to CVR or RVR recommendations.[17-19] Understanding the degree of adherence will inform clinicians regarding the feasibility of such recommendations and better prepare the patients on the expected surgical outcomes. Measurement of adherence to voice rest recommendations is complex due to the lack of standardization of voice rest parameters. By definition, any voice use during CVR would make the patient non-adherent. However, this would not be a realistic expectation for most individuals, making classification of adherence versus non-adherence problematic. Some additional factors that affect adherence include occupational or familial voice-related demands, availability of paid medical leave/sick benefits, and personality.[20-22] Patients are typically asked to subjectively report adherence to VR recommendations during their follow-up visit. There may be a discrepancy in their report due to recall bias and/or differences in patient perception of voice use and actual voice use, making it a weak source for understanding the implications of voice rest on clinical outcomes.[23]

A few studies have addressed this need for measurement of adherence using different approaches. Whitling et al[17] and Misono et al[19] used a dosimeter to measure voice use and patient adherence to VR recommendations compared to patient perception. Misono et al's study showed that the participants who used a dosimeter had a decrease in phonation duration and intensity postsurgery as compared to presurgery indicating that patients did lessen their voice use postoperatively. Whitling et al's study showed that those participants assigned absolute VR reported more difficulty with adherence to VR recommendations compared to an RVR group. Dhaliwal et al[14] and Rousseau et al[24] used a visual analog scale (VAS) to measure patient perception of adherence to recommendations. Dhaliwal et al showed that patients in the absolute VR group reported more frustration on their VAS than those in the no VR group. Rousseau et al found that only 34.5% of the participants reported complete adherence for VR recommendations postoperatively.[24] Koufman and Blalock found poor adherence to VR recommendations correlated highly with postoperative dysphonia in a retrospective analysis of clinical data.[7]

Personality factors

Personality, and other psychological constructs like perceived control, may be important contributors to a patient's ability to follow postsurgical recommendations and in the overall success of a patient's surgical care. Personality is a collection of an individual's psychological traits that can be evaluated by the person (self-evaluation) or another individual.[25] Theories of personality propose a hierarchical model with broad-domain superfactors comprised of lower-order aspects or facets linked to individual psychological behaviors.[26-28] Personality domains that may influence voice use and adherence to a VR protocol (ie, sustained self-regulation) could include Extraversion, Agreeableness, Conscientiousness, Openness to New Experiences, and Emotional Stability.[25,29-30] The Ten-Item Personality Inventory (TIPI) is a brief instrument used to measure these personality parameters and has been previously used in studies on barriers to voice therapy.[22,25,29] These "Big Five" personality factors evaluated by the TIPI may be related to the amount of voice use and the likelihood for subsequent phonotraumatic lesions (as well as a patient's ability to self-regulate)[29,31]. Extraversion is correlated with gregariousness and warmth; Agreeableness with compliance and altruism; Conscientiousness with self-discipline and dutifulness; Openness with feelings and values; and Emotional Stability with anxiety and depression.[25] In individuals with phonotraumatic voice disorders, the influence of personality has been explored in non-singers with phonotraumatic lesions, vocally healthy singers and, singers with phonotraumatic lesions.[22,32] The Trait Theory of Voice Disorders[33] posits that high scores for certain broader factors such as Extraversion and Neuroticism are seen more commonly in individuals with phonotraumatic lesions such as vocal nodules. These individuals were more likely to score high on specific facets of social potency and lower on control. Toles et al found similar distinct relationships between speaking voice use and personality in singers with phonotraumatic lesions.[22] Individuals with higher levels of traits related to happiness and social dominance were more likely to engage in risky behavior (lower levels of Harm Avoidance) and were at risk for developing phonotraumatic lesions. However, a recent study by Free et al, found that individuals respond differently to vocal loading tasks with some demonstrating a negative effect on vocal outcomes, some having no effect, and some showing a positive effect indicating that individualization of treatment recommendations are important.[34] There is currently a paucity of literature that analyzes the relationships between personality traits and adherence to voice rest recommendations. This is worthy of further investigation as studying patient adherence may

help us examine the potential impact of these personality traits on treatment outcomes following phonosurgery.

Perceived control

Perceived control refers to the individual's intrinsic belief that they have some control over their current function.[19] Misono et al adapted the Perceived Control over Stressful Events Scales and used the Perceived Present Control (PPC) subscale for voice problems.[19] Their data showed that patients who score high on the PPC may perceive a greater level of control over their voice problem. Nguyen-Feng et al, found that higher perceived control over a voice disorder reduced voice handicap, independent of personality, and perception of barriers, using the TIPI, PPC, VHI, and a self-report of barriers.[35] Based on this data that we have on PPC and adherence, it would be important to evaluate if PPC plays a role in following postsurgical recommendations.

Given the limited information on personality and PPC in patients on VR, we explored their relationship in two phonosurgical patients receiving two different VR protocols to gain a better understanding of how these factors manifest at the level of the individual patient. We used self-reported voice use and dosimetry as indicators of patient adherence to postoperative recommendations for VR. We hypothesized that individuals with higher scores on the Extraversion subtest of the TIPI and lower scores on the Agreeableness, Conscientiousness, and Emotional Stability subtests will have lower levels of adherence. Individuals with high levels of Extraversion are more likely to have greater voice use and Nguyen-Feng et al, showed that higher levels of perceived present control were also correlated with higher levels of Extraversion and Emotional Stability.[30] Individuals with higher scores on the PPC will have higher levels of adherence, based on Nguyen-Feng et al, who reported that lower perceived control on the PPC was associated with greater concerns about voice therapy goals and the process.[30] An understanding of these factors will allow both physicians and speech-language pathologists to individualize care regarding type of voice rest (RVR vs. CVR) based on possible predictive personality parameters for each patient thus increasing the probability of better short-term outcomes and quality of life for these individuals. If a high level of perceived control does indeed increase adherence, a preoperative training session as studied by Nguyen-Feng et al for traditional voice therapy, can be examined for its effect on postsurgical adherence.[35]

METHODS

Participants

Two adult participants, a 31-year-old male and a 21-year-old female, a subset of a larger data set, were included in this case comparison. Each participant was diagnosed with benign vocal fold lesions (polyp and nodules) and recommended phonosurgery. Participants who had previous experience with VR were excluded from this study. These two cases were specifically selected because they were randomized to different VR protocols but had commonalities in their diagnosis of phonotraumatic lesions, as compared to other benign lesions such as papilloma or Reinke's edema. The pathogenesis of these types of lesions may be in part due to the increased vocal load inherent in certain personality parameters (ie, Extraversion).

Procedures

This study was approved by the Institutional Review Boards at the University of Houston and the Houston Methodist Research Institute. Data collection occurred preoperatively, during the 7 days of VR, and 8-12 days postoperatively.

Preoperative Data Collection (3-7 Days Prior to Phonosurgery)

Participants were randomly assigned to either CVR or RVR groups using permuted blocked randomization. Both participants received a handout with instructions on VR, provided in Table 1. In the absence of standard RVR definitions, we chose to use a time-based definition of RVR to stay consistent with the unit of measurement (time). Participants completed the preoperative questionnaires on voice-related demographics, the Voice Handicap Index (VHI), TIPI (Appendix A), and PPC (Appendix B). Two experienced SLPs completed the Consensus Auditory-Perceptual Evaluation of Voice (CAPE-V). The vocal dosimeter (VocaLog2, Griffin Laboratories) was calibrated to the participant. The participant was provided with an instruction sheet on its use and placement.

Voice Rest (7 Days Postoperatively)

Participants wore the dosimeter daily during their waking hours for 7 days. They self-reported voice use with electronic VAS scales (Figure 1) for each day of VR three times a day, approximately every 5 hours, during their waking hours (6:00-21:59) to minimize recall bias.

Postoperative Data Collection (8-12 Days Postoperatively)

Participants completed a postoperative questionnaire, with questions on the impact of the VR, barriers and facilitators to VR, and a final VAS for overall voice use across the duration of VR (Table 2).

Data Analyses

The CAPE-V, VHI, TIPI and PPC scales were scored and compared between the subjective VAS and the objective dosimeter collection for the two participants. Tables 3-5 provide a summary of the patient demographics and data from the different measurements.

TABLE 1.
Patient Instructions for Voice Rest Protocol

VR	Voice Rest Instructions (7 days)			
CVR	No voicing			
RVR	Days 1-3: CVR	Day	AM	PM
	Days 4-7: modified voice use with conversational pitch	4	5 min	5 min
	and loudness, speaking to a person at arm's length,	5	10 min	10 min
	avoid all noisy environments. No more than 5 min at a	6	15 min	15 min
	time, with at least 30s rest after the 5 min. Total	7	20 min	20 min
	minutes of voice use allowed →			
CVR and RVR	Use of alternate mode of communication (paper-pen, text-to-speech app), no whispering, throat clearing, coughing (avoid as much as possible, substitute with soft glottal attack if necessary), no weightlifting or playing wind instruments.			

Abbreviations: VR, voice rest; CVR, complete voice rest; RVR, relative voice rest.

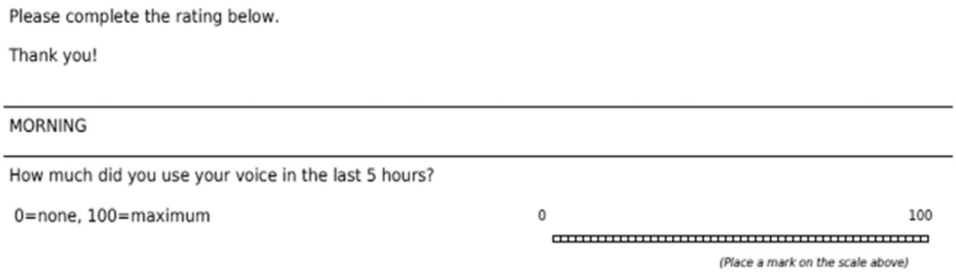

FIGURE 1. Example of the visual analog scale (VAS).

CASE PROFILES

Case 1

Participant 1 (CVR) was a 31-year-old male medical resident with a diagnosis of right vocal fold polyp whose daily vocal load consisted of primarily speaking with his patients, colleagues, etc (Figure 2) The preoperative CAPE-V indicated mild-moderate dysphonia. Following scoring of the TIPI and using the score interpretations provided, he rated high for Extraversion and Conscientiousness, moderate for Emotional Stability and Openness, but low on Agreeableness. His PPC score suggested that he perceived control over his current voice disorder, and he scored moderately severe on the VHI. As seen in Table 5, the daily comparison of the VAS data suggested that he perceived his voice use 0.72%-1.36% more as compared to objectively measured voice use via the dosimeter. He was not completely silent nor was that his perception. On the overall VAS scale, he rated his voice use across these 7 days at 4%. He reported that the CVR protocol affected him emotionally and influenced his home and social life, but it did not affect his work life. He took 5 days off work with pay. He did not report any barriers to success with the CVR protocol, but he disagreed that VR was easy.

Case 2

Participant 2 (RVR) was a 21-year-old female fine arts (theatre) major with a diagnosis of bilateral vocal fold nodules whose vocal load consisted of both teaching and performing as an actress and singer. (Figure 3) She had mild-moderate dysphonia as rated on the CAPE-V. Her TIPI scores were high for Extraversion and Openness, moderate for Conscientiousness and Emotional Stability, but low on Agreeableness. Her PPC score suggested that she perceived that she had control over her current vocal health condition, which was rated as moderately severe on the VHI. The daily VAS data suggested that as compared with the objective dosimetry-based estimates of voice use, she reported 20.37%-22.37% greater voice use than what was measured. She was also not completely silent, nor did she perceive that she was during the VR period.

Compared to the daily rating, on the overall VAS, she rated her voice use at 11% across the 7 days. This participant reported that the RVR protocol adversely affected her home, work, and social life. She took 7 days off part-time work without pay during the VR period. She reported three barriers to success with the RVR protocol: friends, roommates, and "wanting to sing at any given moment." She was neutral and neither agreed nor disagreed in her response that VR was easy.

The two participants demonstrated different subjective measurements of voice use even with similar objective measurements as seen on the dosimeter. A comparison of their dosimeter and VAS data is provided in Figure 4.

TABLE 2.
Postoperative Questionnaire

How did you communicate while on voice rest?
How many days of paid time off did you have to take at work when on voice rest?
How many days did you lose pay at work while on voice rest?

	Item	1 Strongly agree	2 Agree	3 Neutral	4 Disagree	5 Strongly disagree
Quality of life	Voice rest affected my life at home					
	Voice rest affected my life at work					
	Voice rest affected my social life					
	Voice rest affected me emotionally					
Supports and barriers	The people around me supported me during voice rest					
	I had barriers to achieving this goal*					
	Overall, being on voice rest was easy					

* If you had barriers to achieving this goal, list your top 3 barriers

TABLE 3.
Participant Demographics

Patient	Age	Occupation	Vocal Demands	Home
CVR	31	Medical Resident	Speaking with patients, colleagues, etc	Self
RVR	21	University student and actress	Actress (accents, singing (cover bands), character voices) and acting teacher for children (large groups)	Sister and 2 friends

TABLE 4.
Perceived Present Control (PPC), Voice Handicap Index (VHI), Overall Consensus Auditory-Perceptual Evaluation of Voice (CAPE-V), and Ten-Item Personality Inventory (TIPI) Scores

Patient	PPC	VHI	Preop CAPE-V Overall		TIPI				
			Rater 1	Rater 2	Extraversion	Agreeableness	Conscientiousness	Emotional Stability	Openness
CVR	3	64	35	37	7	4	7	6	6
RVR	2.63	66	29	26	7	3.5	6	5.5	6.5

DISCUSSION

The results between the two participants suggest that it may be easier to accurately self-assess adherence to complete versus relative VR. It may be harder for patients to accurately gauge extent of voice use when they are given general guidelines in RVR versus the absolute yes/no measurement in CVR. Self-perceived voice use was closest to objectively measured voice use for the CVR patient and both participants were vocal during all days of VR. Interestingly, they both perceived that they increased their voice use in days 4-7. Perhaps this was an adjustment to the prescribed VR protocol based on somatosensory/auditory feedback noting a change or improvement in their voice. Differences between the self-reported adherence and the dosimeter data were also observed in the Misono et al study.[19] The wide discrepancies between the subjective perception measured by the VAS and the objective duration of voice use on the dosimeter in Participant 2 suggest that she may have considered any voice use above the recommendations as excessive and reported an exaggerated result. This may also be a consequence of her theatre/arts background where small changes in the voice can have significant consequences in the performance causing a heightened awareness of voice use. Participant 1 reported that the VR protocol was difficult on the postoperative questionnaire; however, Participant 2 neither agreed nor disagreed that adhering to the VR protocol was easy but reported barriers to success (losing pay during the 7 days of VR). Interestingly, she did not report any financial

TABLE 5.
Percentage of Voice Use During Waking Hours as Measured by the Vocalog2 Dosimeter and the VAS

	CVR (%)		RVR (%)	
	Dosimeter	VAS	Dosimeter	VAS
Day 1	1.03	3.67	3.71	18.33
Day 2	4.63	5	3.32	29.67
Day 3	2.04	1	6.3	21.67
Day 4	0	6.67	5.48	40.33
Day 5	4	0.33	5.24	36.33
Day 6	8.9	2.67	4.4	19.33
Day 7	6.91	4.67	0.48	12.67

or economic barriers, only social and emotional. Participant 1 did not report any of the same barriers.

Neither of the participants reported being completely silent during the CVR period, which is in agreement with the previous studies on VR adherence.[7,19,36] Perhaps the perception of an increase in voice use across the participants regardless of VR type occurred due to heightened awareness and focus on their voice during the 7 days. Additionally, the self-reported voice use may have reflected individual instances of voice use, however short in duration, as opposed to the second-by-second measures taken by the dosimeter, which may have corresponded to a small percentage of their waking hours. The differences in perception for the two participants could not be explained by the five personality traits given that both participants had similar scores on the TIPI. There may be other personality traits that need to be examined but some of the differences may have arisen from their individual life experiences, education, and profession.

To improve patient adherence to postoperative recommendations, a study by King et al looked at the effect of preoperative voice therapy on voice rest adherence. They found that patients on VR are not absolutely adherent to recommendations and participants overestimated adherence to the VR recommendations measured using VAS.[37] Conversely, our participants reported significantly more voice use than what was recommended and what was measured on the dosimeter. There is a possibility that wearing the dosimeter during the VR period served as a subtle reminder to restrict voice use in our participants. Finally, our findings agree with the Whitling et al and Dhaliwal et al studies, as Participant 1 reported more difficulty and/or frustration with CVR than Participant 2 on RVR.[16,17]

The results of the TIPI showed that both participants scored moderately high to high on Extraversion and reported vocally demanding occupations, which may correspond with their extraverted personalities. Both participants also scored moderately high on Conscientiousness, Openness, Emotionally Stability, and Agreeableness. It is worth noting that personality parameters may be expressed differently in various environments. Overall, both participants showed similar personality profiles using the TIPI, but further examination of lower-order facets might reveal differences reflective of their performance on the subjective tasks. While personality is a contributor to the development of certain voice disorders and further success in behavioral treatment, it has not been found to be a causal factor and may only heighten the impact of anatomical/physiological and environmental predisposition. Similarly, personality factors

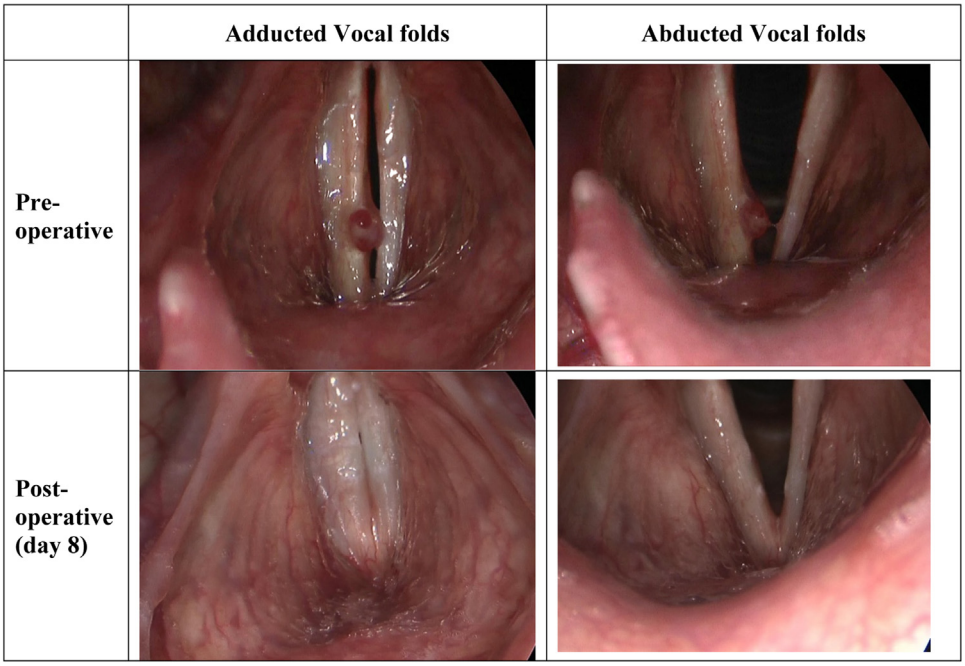

FIGURE 2. Preoperative and postoperative still images of adducted and abducted vocal folds during endoscopic imaging for Participant one.

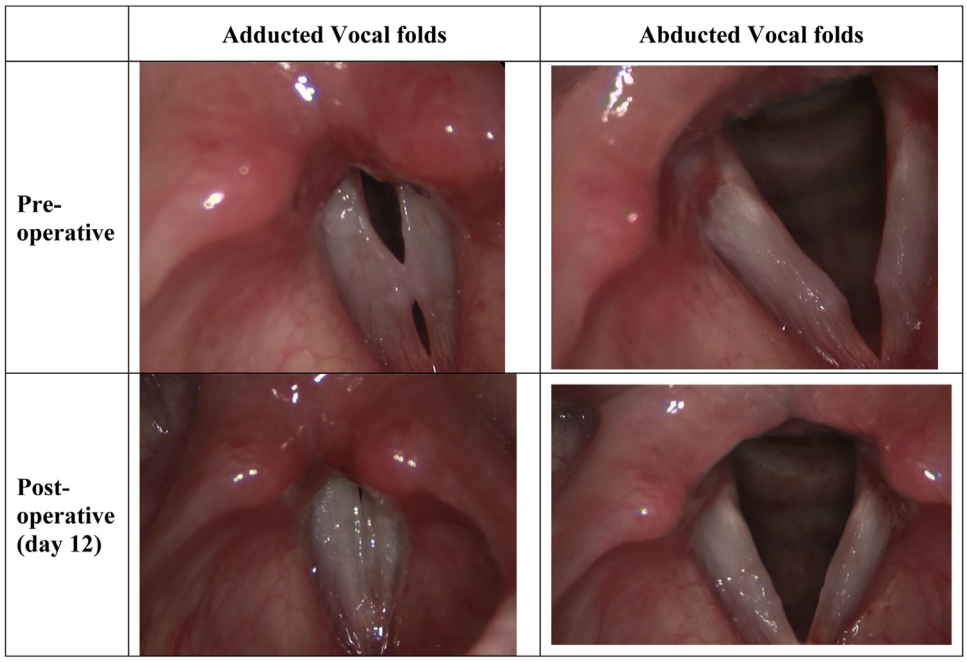

FIGURE 3. Preoperative and postoperative still images of adducted and abducted vocal folds during endoscopic imaging for Participant two.

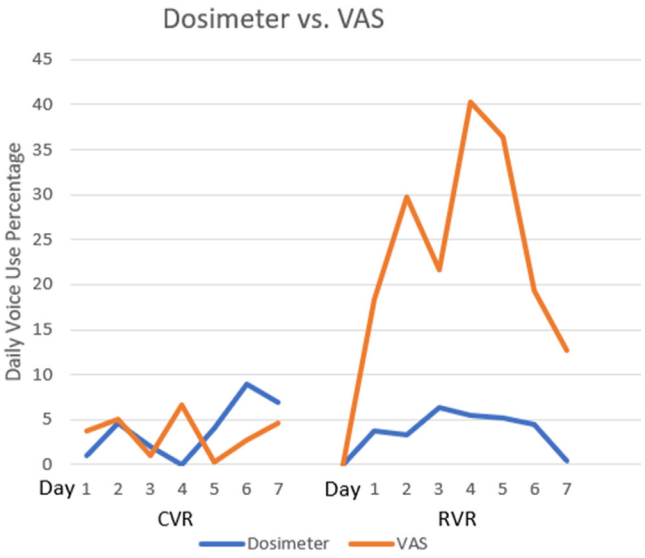

FIGURE 4. Comparison of voice use measured by the dosimeter to self-perceived voice use measured by a visual analog scale (VAS) for Participant one on complete voice rest (CVR) and Participant two on relative voice rest (RVR).

may not completely explain adherence to voice rest recommendations but may simply be a piece of the puzzle. This study examined a short period of time when the patients were not in their typical work or school environment, where they would be more likely to use their voices. The change to a less vocally demanding environment should increase the likelihood of following a VR protocol; however, for individuals who are unable to take time off from work or with familial demands, adherence to VR recommendations may become more challenging. This short-term self-regulation may not be sustainable once they resume their normal vocal activities in their typical environments. This may lead to difficulty in continued adherence to voice use recommendations during the postoperative period where self-regulation is a necessary component of voice therapy and may affect long-term success.

The results of the PPC showed that Participant 1 (CVR) perceived a slightly higher amount of control (3/5) over his current vocal health condition and Participant 2 (RVR) perceived slightly less (2.63/5). This is particularly interesting when comparing PPC score to perceived severity on the VHI (66/120) for Participant 2 and Participant 1 (64/120). The Nguyen-Feng et al study found that a higher perceived control over a voice disorder reduced the voice handicap and perception of barriers.[30] Participant 2 perceived a lower amount of present control but had similar VHI scores to Participant 1. Considering her vocal obligations in the context of her education, as well as her additional vocally intensive activities (performing and teaching), there may be higher social-emotional stakes involved when presenting in front of other performing artists and professionals. In the absence of her level of perceived control, she could have experienced a greater effect of VR on her quality of life and a higher score on the VHI. *Limitations*

This study was presented as an exploratory case comparison between two participants. A larger sample size will provide more insight into the interaction between behavioral factors and postoperative voice use. The Vocalog2 device used in this study measures voice use second-by-second, which has the potential to overestimate voice use. Since voice use was supposed to be limited, this was not a significant concern when balanced with the other advantages of using this device, primarily, the

ability to provide the participant with a device that did not need daily calibration.

CONCLUSION

Patients may not fully adhere to VR recommendations and may have higher than recommended voice use for both, CVR or RVR. Neither participant was fully adherent to their VR protocol. The level of adherence for both VR protocols in these two participants may indicate that personality traits alone may not affect patient adherence to recommendations of VR. Further examination of personality traits (at both the superfactor and lower-order trait/facet levels) could improve fidelity in personality description in addition to factors such as education, occupation, and social demands and will direct us towards a better understanding of the factors involved in postsurgical rehabilitation.

APPENDIX A. TEN-ITEM PERSONALITY INVENTORY (TIPI)

Instructions: Here are a number of personality traits that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

I see myself as. . .

1. . .Extraverted, enthusiastic
2. . .Critical, quarrelsome
3. . .Dependable, self-disciplined
4. . .Anxious, easily upset
5. . .Open to new experiences, complex
6. . .Reserved, quiet
7. . .Sympathetic, warm
8...Disorganized, careless
9...Calm, emotionally stable
10. . .Conventional, uncreative

1. There isn't much I can do to help myself feel better about this problem.
2. How I deal with the voice problem is now under my control.
3. I don't have much control over my emotional reactions to this problem.
4. When I am upset about the voice problem, I can find a way to feel better.
5. I have control over my day-to-day reactions to the voice problem.
6. There isn't much I can do to keep the voice problem from affecting me.
7. I have control over how I think about the voice problem.
8. My reaction to the voice problem is not under my control.

Ratings	1-Strongly disagree	2-Disagree somewhat	3-Agree somewhat

APPENDIX B. PERCEIVED PRESENT CONTROL (PPC)

Instructions: These questions ask about your sense of control over your voice problem. Please note that some statements are worded such that if you AGREE with the statement, you are indicating that you DO have control, and other statements are worded such that if you agree with the statement, you are indicating that you DO NOT have control.

Ratings	1-Disagree strongly	2-Disagree moderately	3-Disagree a little	4-Neither agree nor disagree	5-Agree a little	6-Agree moderately	7-Agree strongly

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