

Vocal Tract Discomfort Symptoms In Elementary And High School Teachers

Mahdi Tahamtan¹, Ali Kakavandi², Ronald C. Scherer¹, Mohsen Vahedi³
¹Department of Communication Sciences and Disorders, Bowling Green State University (mahdit@bgsu.edu)
²Student Research Committee, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
³Department of Biostatistics, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran

Introduction

Teachers have a significantly higher prevalence of occupational voice disorders than the general population¹. Among the symptoms that are associated with occupational voice disorders, vocal tract discomfort (VTD) symptoms are the most prominent². The importance of VTD arises from the fact that the patient's perception of vocal tract discomfort is not easily apparent to the clinician and often is not assessed, as clinicians mostly rely on objective assessments and their own perceptions of voice quality³. Therefore, the VTD scale that was developed by Mathieson and her colleagues⁴ may be a useful tool in the assessment process of the vocal tract and voice problems in teachers.

Research Goals

1. Comparing VTD symptoms between elementary and high school teachers
2. Comparing VTD symptoms between female and male teachers
3. Investigating the effects of teacher's age and teaching years (experience) on the VTD symptoms

Methods

The VTD scale is a self-rating seven-point Likert scale that quantifies frequency and severity of eight qualitative descriptors including burning, tightness, dryness, aching, tickling, sore, irritable, and lump in the throat and ranges from 0 (never/none) to 6 (extreme/always). The Persian Vocal Tract Discomfort scale⁵ was used in the current study.

Twenty elementary and high schools were selected by simple random sampling in Khorramabad, Iran. Teachers were asked to answer the VTD scale questionnaires. Considering the inclusion criteria, required sample size, and after excluding questionnaires that were not correctly answered, 120 were selected such that 30 were chosen randomly for each subgroup.

Subjects consisted of 60 elementary school teachers (30 females and 30 males) with the mean age of 40.92 years and 60 high school teachers (30 females and 30 males) with the mean age of 40.67 years.

Results

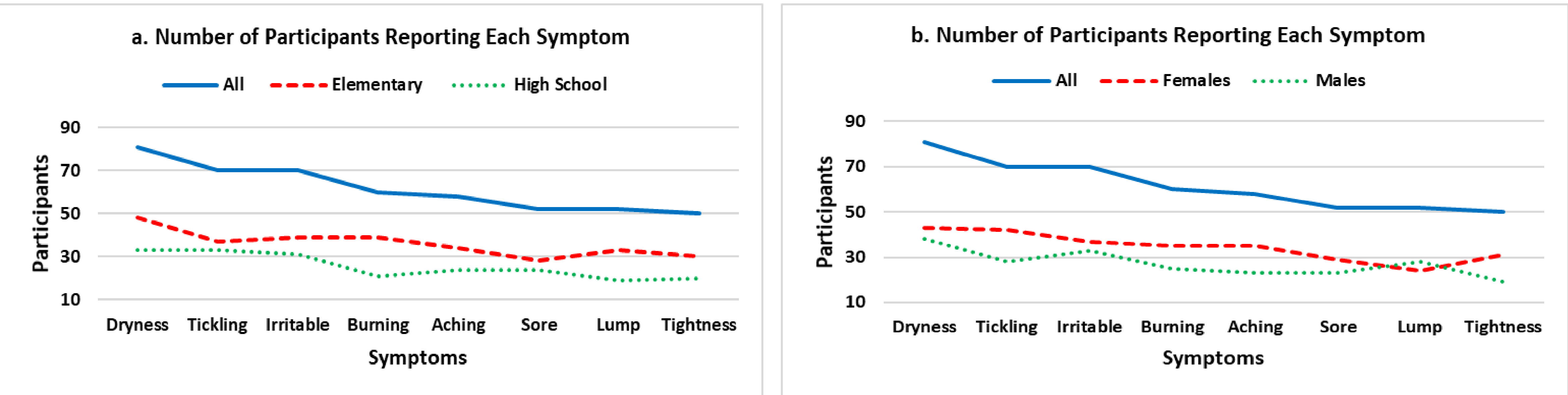


Figure 1. Number of elementary and high school teachers (a), and female and male teachers (b) reporting vocal tract discomfort symptoms.

- a. More elementary teachers than high school teachers reported each symptom.
b. More female teachers than male teachers reported each symptom (except lump in the throat).

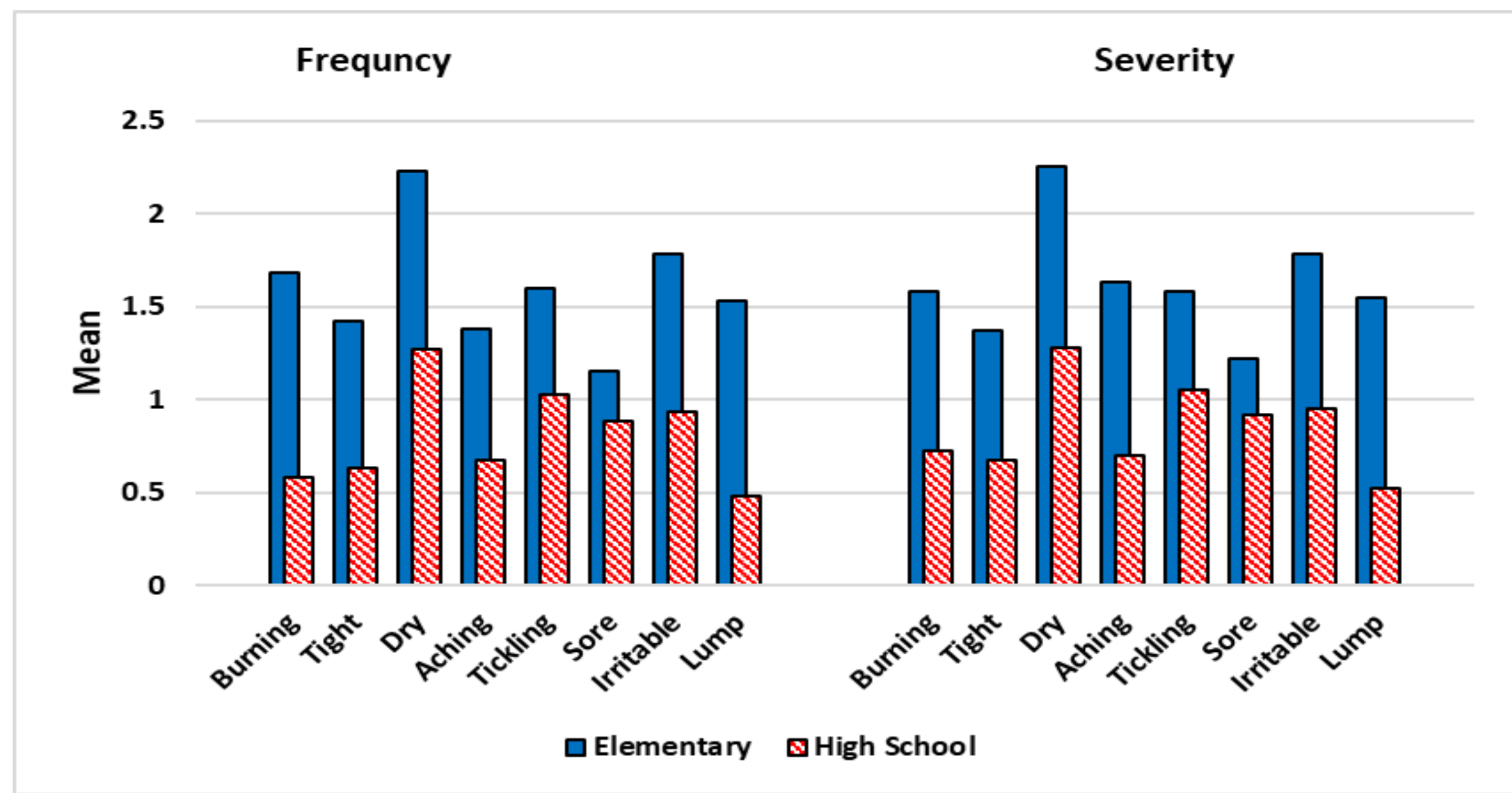


Figure 2. Mean frequency and severity (ranges from 0 to 6) in elementary and high school teachers.

All symptoms are significantly higher (medians) in elementary teachers than high school teachers, except for tickling and soreness.

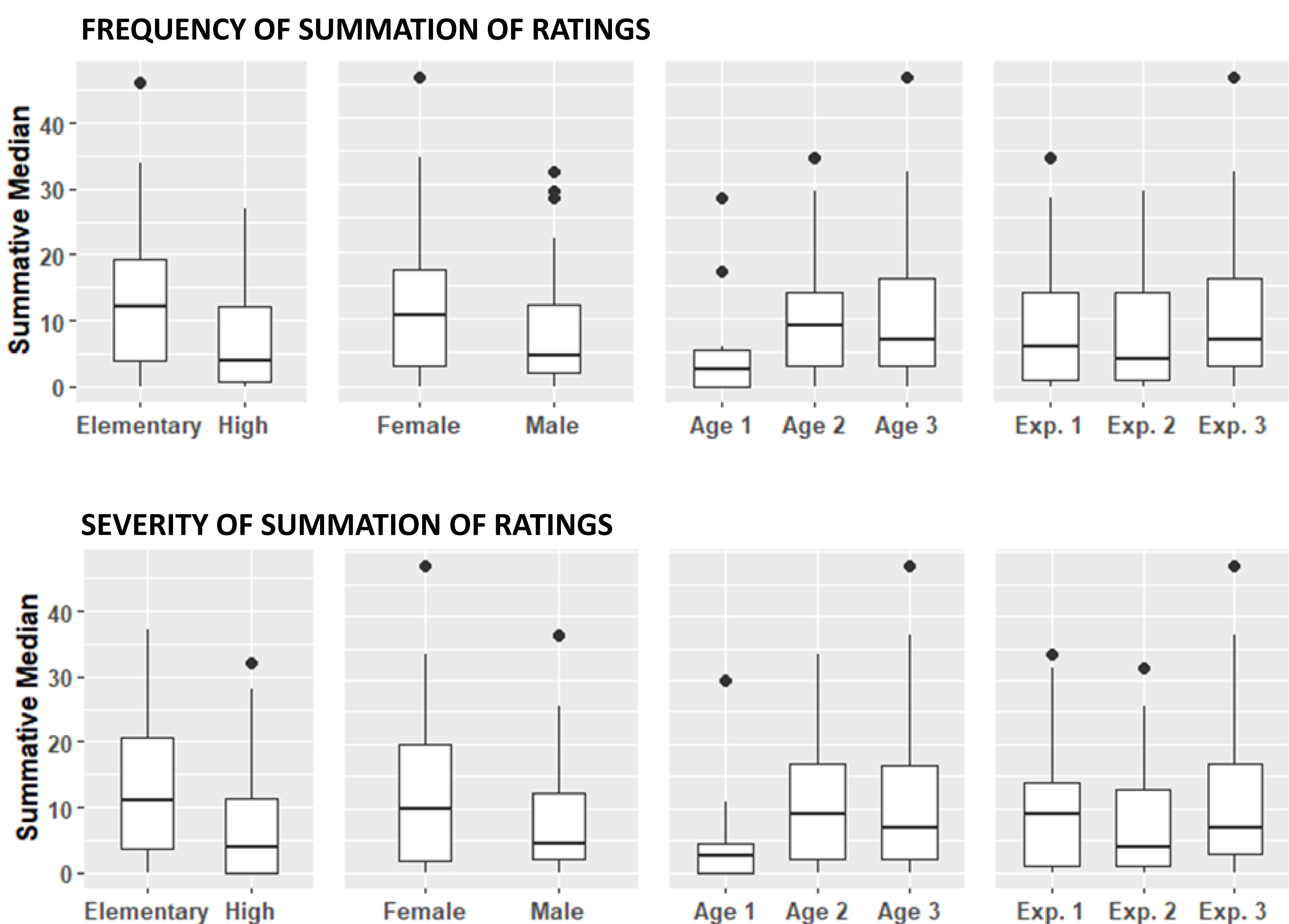


Figure 3. Frequency (top figure) and severity (bottom figure) boxplots of the summation of ratings across the 8 symptoms according to grade, gender, and different age and experience groups.

Note. Summation of the symptoms ranging from 0 (0 x 8) to 48 (6 x 8); the value would be 48 if one rates 6 for the frequency or severity of all 8 symptoms.

Note. Age 1 = 25-33 years, Age 2 = 34-41 years, Age 3 = 42-49 years. Experience 1 = 5-13 years, Exp. 2 = 14-21 years, Exp. 3 = 22-29 years.

Table 1. Number of symptoms reported by teachers (N = 120) when categorized by grade and gender.

Number of Symptoms	Grade (N = 120)		Gender (N = 120)	
	Elementary	High School	Female	Male
No (0) symptoms	5	15	9	11
All (8) symptoms	14	7	15	6

More elementary school teachers (14) reported all 8 VTD symptoms compared with high school teachers (7).

More female teachers (15) reported all 8 VTD symptoms compared with male teachers (6).

Conclusion

1. Dryness was the most frequently reported symptom (Figure 1). Dryness had the highest frequency and severity mean ratings (Figure 2).
2. Soreness, lump in the throat, and tightness were among the lowest frequently reported symptoms (Figure 1).
3. Elementary school teachers had significantly higher frequency and severity ratings of vocal tract discomfort symptoms than high school teachers.
4. Female teachers had higher frequency and severity ratings of vocal tract discomfort symptoms than male teachers, but the difference was not statistically significant.
5. Younger teachers 25-33 years of age had significantly lower frequency and severity ratings of vocal tract discomfort symptoms than teachers 34-41 years of age, but not significantly different from teachers 42-49 years of age.
6. Teaching experience was not an important factor in predicting vocal tract discomfort symptoms in teachers.

References

1. Roy, N., Merrill, R. M., Thibeault, S., Parsa, R. A., Gray, S. D., & Smith, E. M. (2004). Prevalence of voice disorders in teachers and the general population. *Journal of Speech, Language, and Hearing Research: JSLHR*, 47(2), 281-293.
2. Woznicka, E., Niebudek-Bogusz, E., Kwiecien, J., Wiktorowicz, J., & Sliwiska-Kowalska, M. (2012). Applicability of the vocal tract discomfort (VTD) scale in evaluating the effects of voice therapy of occupational voice disorders. *Medycyna Pracy*, 63(2), 141-152.
3. Rodrigues, G., Zambon, F., Mathieson, L., & Behlau, M. (2013). Vocal tract discomfort in teachers: Its relationship to self-reported voice disorders. *Journal of Voice*, 27(4), 473-480.
4. Mathieson, L., Hirani, S. P., Epstein, R., Baken, R. J., Wood, G., & Rubin, J. S. (2009). Laryngeal manual therapy: a preliminary study to examine its treatment effects in the management of muscle tension dysphonia. *Journal of Voice*, 23(3), 353-366.
5. Torabi, H., Khoddami, S. M., Ansari, N. N., & Dabirmoghaddam, P. (2016). The vocal tract discomfort scale: Validity and reliability of the Persian version in the assessment of patients with muscle tension dysphonia. *Journal of Voice*, 30(6), 711-716.