

Voice Use, Voice Disorders, and Awareness Levels in Healthcare Providers

Hastane Çalışanlarında Ses Kullanımı, Ses Sorunları ve Farkındalık Düzeyi

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ABSTRACT

Objective: This study aimed to examine occupational voice use characteristics, the prevalence of voice disorders, and the level of vocal hygiene awareness among healthcare providers.

Materials and Methods: A cross-sectional descriptive study was conducted with 100 healthcare professionals working in a tertiary hospital. Data were collected through a structured questionnaire and the Voice Handicap Index-10 (VHI-10). Statistical analyses examined the associations between voice-related symptoms, occupational factors, and awareness levels.

Results: A total of 100 healthcare providers participated (76% female; median age: 30 years). Physicians (49%) and nurses (42%) comprised the majority of the sample, with a median professional experience of 6 years. Most (73%) worked in non-ENT clinics. Voice-related symptoms were highly prevalent: 85% reported at least one in the past year—most commonly throat dryness (74%), dysphonia (26%) and vocal fatigue (22%). Only 14.1% sought medical consultation. Smoking and reflux were reported by 44% and 42%, respectively. The median VHI-10 score was 10 (range: 0–29). Participants who frequently or always spoke loudly and those reporting vocal fatigue were significantly more likely to have VHI-10 >7 ($p=0.045$ and $p=0.046$, respectively). No significant differences were found by self-reported or tested vocal hygiene knowledge ($p>0.05$). Overall, 70% had no prior knowledge of vocal hygiene, and 85% had not received formal training.

Conclusions: Voice problems are highly prevalent among healthcare providers, mainly associated with loud speaking and vocal fatigue. Despite frequent symptoms, awareness and care-seeking remain low. Preventive education and workplace strategies are essential to safeguard vocal health in this professional group.

Keywords: Dysphonia, occupational health, voice disorders

ÖZ

Amaç: Bu çalışma, hastane çalışanlarında mesleki ses kullanım özelliklerini, ses bozukluklarının prevalansını ve vokal hijyen farkındalık düzeyini incelemeyi amaçlamıştır.

Materyal ve Metot: Kesitsel tanımlayıcı tasarımla yürütülen çalışmaya, üçüncü basamak bir hastanede görev yapan 100 sağlık çalışanı dahil edilmiştir. Veriler, yapılandırılmış bir anket formu ve Ses Handikap Endeksi-10 (SHE-10) kullanılarak toplanmıştır. Sesle ilişkili semptomlar, mesleki risk faktörleri ve farkındalık düzeyi arasındaki ilişkiler istatistiksel olarak analiz edilmiştir.

Bulgular: Çalışmaya toplam 100 sağlık çalışanı katılmıştır (%76 kadın; ortalama yaş: 30 yıl). Katılımcıların %49'u hekim, %42'si hemşiredir ve ortalama mesleki deneyim süresi 6 yıldır. Çoğu (%73) KBB dışı kliniklerde çalışmaktadır. Sesle ilişkili semptomlar yaygındır; katılımcıların %85'i son bir yılda en az bir semptom bildirmiştir. En sık boğaz kuruluğu (%74), disfoni (%26) ve vokal yorgunluk (%22) görülmüştür. Yalnızca %14,1 tıbbi yardım almıştır. Katılımcıların %44'ü sigara kullanmakta, %42'sinde reflü öyküsü bulunmaktadır. SHE-10 ortalama skoru 10 (0–29)'dur. İşte sık veya sürekli yüksek sesle konuşanlarda ($p=0,045$) ve vokal yorgunluk yaşayanlarda ($p=0,046$) yüksek SHE-10 skoru anlamlı olarak daha fazladır. Vokal hijyen bilgisi veya eğitimi ile skorlar arasında fark saptanmamıştır ($p>0,05$). Katılımcıların %70'i vokal hijyen hakkında bilgi sahibi olmadığını, %85'i bu konuda hiç eğitim almadığını belirtmiştir.

Sonuç: Sağlık çalışanlarında ses sorunları oldukça yaygındır. Özellikle sık yüksek sesle konuşma ve vokal yorgunluk önemli risk faktörleridir. Düşük farkındalık ve düşük başvuru oranı, ses sağlığının korunması için eğitim ve önleyici stratejilerin gerekliliğini göstermektedir.

Anahtar Kelimeler: Disfoni, mesleki sağlık, ses bozuklukları

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Yayın Bilgisi / Article Info:

Gönderi Tarihi/ Received: 16/09/2025
Kabul Tarihi/ Accepted: 28/10/2025
Online Yayın Tarihi/ Published: 20/12/2025

INTRODUCTION

Voice disorders constitute a significant public health concern, with prevalence rates varying widely across populations and professional groups.¹ Their frequency is notably higher in professions with intensive vocal demands, such as teaching, where prevalence can range from 21% to 60%.^{2,3} Beyond educators, healthcare providers are increasingly recognized as an at-risk cohort due to the demanding nature of their work. They engage in constant and prolonged verbal communication in environments often characterized by high noise levels and crowded spaces, which necessitates speaking loudly and further elevates their risk profile.

The consequences of voice disorders for these professionals are multifaceted, extending beyond physical discomfort to significant occupational and economic burdens. Compromised vocal ability increases the risk of sick leave, reducing productivity and increasing workload for colleagues.^{4,5} Furthermore, voice problems are strongly correlated with psychological distress, including stress, anxiety, and depression.⁶⁻⁸ Despite these clear hazards, there is a relative scarcity of systematic research comprehensively examining the voice-related challenges faced by healthcare providers, particularly in tertiary care settings.

This study aims to address this gap by systematically investigating occupational voice use and its associated factors among healthcare providers in a tertiary care institution, providing a necessary empirical foundation for developing effective preventive and therapeutic strategies to protect this essential workforce.

MATERIALS AND METHODS

Ethics Committee Approval: The study protocol received official approval from the Education Planning Committee of Dr. Abdurrahman Yurtaslan Ankara Oncology Research and Training Hospital (Date: 05/08/2025, decision no: 20). All procedures adhered strictly to the ethical principles of the Declaration of Helsinki. Detailed information was provided to all subjects, and written informed consent was obtained prior to their voluntary participation.

Study Population and Sample: This descriptive, cross-sectional study employed a convenience sampling method, inviting all healthcare providers from the tertiary care hospital. The final sample comprised 100 individuals who completed the data collection instruments.

Data Collection Tools: Data were collected using a self-administered questionnaire developed for this study and the Voice Handicap Index-10 (VHI-10). The custom questionnaire gathered information on: 1) Demographic and Professional Characteristics (age, sex, role), 2) Occupational/Personal Habits (voice use, smoking status, reflux), 3) Self-reported Voice-Related Problems and Consultation Behavior, 4) Vocal Hygiene Awareness and Training. The VHI-10 was used as a standardized, validated instrument to measure the impact of voice disorders on quality of life.

Statistical Analysis: The statistical analyses were conducted using IBM SPSS Statistics (Version 23.0, Armonk, NY: IBM Corp.). Descriptive statistics were presented as numbers/percentages (categorical) or median, min/max (numerical). The distribution of the data was assessed using the Kolmogorov-Smirnov test. All statistical analyses were conducted at a significant level of 0.05, and two-tailed tests were used to assess differences between groups. There was no missing data in this study.

RESULTS

A total of 100 healthcare professionals completed the survey, providing a comprehensive dataset on their vocal health. The median age of the participants was 30 years, with a wide age range from 25 to 55 years. The sample was predominantly female, comprising 76% (n=76) of the participants, while male participants accounted for 24% (n=24). Professionally, physicians constituted the largest group at 49% (n=49), followed by nurses at 42% (n=42). Other professional groups, such as secretaries and healthcare technicians, made up the remaining 9% (n=9). The majority of the sample 73% (n=73) worked in clinical departments other than Otorhinolaryngology, with 27% (n=27) employed in the Otorhinolaryngology clinic. The median duration of professional experience among participants was 6 years (range: 1–36). Participants' self-reported habits revealed a high prevalence of behaviors that can negatively impact vocal health. Only 48% reported being non-smokers, while a significant portion were currently active users (44%). Reflux, a known risk factor for voice disorders, was reported by 42% of participants. The data demonstrated a high prevalence of vocal symptoms among the participants. An overwhelming majority, 85% of the healthcare providers, reported experiencing at least one voice-related symptom within the past year. Of those reporting symptoms (n=85), only 14.1% sought medical attention, while 85.9% did

Table 1. Descriptive Characteristics of the Study Participants (n=100).

Characteristic	Value
Continuous Variables, (Median [Min – Max])	
Age (Years)	30 [25 – 55]
VHI-10 Score	10 [0 – 29]
Years of Professional Experience	6 [1 – 36]
Sex, n (%)	
Female	76 (76.0)
Male	24 (24.0)
Profession, n (%)	
Physician	49 (49.0)
Nurse	42 (42.0)
Other Healthcare Professionals	9 (9.0)
Working Unit, n (%)	
Otorhinolaryngology Clinic	27 (27.0)
Other Clinics	73 (73.0)
Smoking Status, n (%)	
Active User	44 (44.0)
Never Smoked	48 (48.0)
Gastroesophageal Reflux Diagnosis, n (%)	
Reported (Yes)	42 (42.0)
Not Reported (No)	58 (58.0)
Presence of at Least One Vocal Symptom, n (%)	
Yes	85 (85.0)
No	15 (15.0)
Medical Attention For Vocal Symptoms, n (%)	
Yes	12 (14.1)
No	73 (85.9)
Total	85 (100.0)

VHI-10: Vocal Handicap Index-10; Min – Max: Minimum–Maximum.

not. The demographic and professional distribution of participants is summarized in Table 1.

The most common symptom was throat dryness or burning, reported by 74%. This was followed by dysphonia (26%) and vocal fatigue (22%). These percentages reflect the fact that participants were able to endorse more than one symptom, indicating the co-occurrence of various vocal complaints. In the workplace, the necessity to speak loudly was a common occurrence: 3% never, 58% did so occasionally, 29% frequently, and 10% always. Vocal fatigue was also a highly prevalent complaint, with reporting never experiencing it, occasionally, frequently, and always. Regarding self-reported knowledge of vocal hygiene, of the participants reported not having any knowledge

about it, meaning only had some knowledge. Similarly, stated that they had not received any formal training in this area, while they had. In the questions assessing basic knowledge of voice hygiene, 54% of the participants answered correctly, while 46% responded partially or incorrectly. The variables related to vocal health in the workplace are summarized in Table 2.

The Voice Handicap Index-10 (VHI-10) was used to measure the impact of voice problems on participants' quality of life. The scores ranged from 0 to 29, with a median score of 10. These scores reflect a notable level of subjective vocal handicap, suggesting that the voice problems experienced by these professionals have a tangible and negative effect on their daily lives. A cut-off value of 7 was used for

Table 2. The variables related to vocal health (n=100).

Variables	n (%)
The Most Common Symptoms	
Throat Dryness or Burning	74 (74.0)
Dysphonia	26 (26.0)
Vocal Fatigue	22 (22.0)
Necessity To Speak Loudly	
Never	3 (3.0)
Occasionally	58 (58.0)
Frequently	29 (29.0)
Always	10 (10.0)
Experience of Vocal Fatigue	
Never	8 (8.0)
Occasionally	49 (49.0)
Frequently	31 (31.0)
Always	12 (12.0)
Self-reported Knowledge of Vocal Hygiene	
No	70 (70.0)
Yes	30 (30.0)
Correctly answering vocal hygiene questions	
Correct	54 (54.0)
Partial or Incorrect	46 (46.0)
Formal Training in Vocal Hygiene	
Received	15 (15.0)
Not Received	85 (85.0)

the VHI-10. The results of Fisher's exact test indicated that the proportion of participants with VHI-10 scores over 7 was higher among those who reported speaking loudly (frequently or always) at work compared to those who did not (never or occasionally) ($p = 0.045$), and among those experiencing vocal fatigue (frequently or always) compared to individuals without fatigue (never or occasionally) ($p = 0.046$). In contrast, the percentage of participants with VHI-10 scores over did not differ based on self-reported knowledge of vocal hygiene (whether they reported having knowledge or not) ($p=0.162$) or when their basic vocal hygiene knowledge was specifically assessed using directed questions (i.e., comparing those answering completely correct versus partially or incorrectly) ($p=0.514$). No significant difference was found between having or not having Formal Training in Vocal Hygiene either ($p=0.543$). The distribution of participants according to the VHI-10 cut-off score is shown in Table 3.

DISCUSSION AND CONCLUSION

Voice-related problems are increasingly prevalent due to the intensification of noise in work and urban environments, making professional voice users particularly susceptible. Healthcare providers, who rely heavily on verbal communication, are thus a group at heightened risk. Understanding their occupational voice use, problem prevalence, and vocal hygiene awareness is crucial for effective prevention and therapy, which was the aim of this study in a tertiary care setting. Koufman et al.⁹ classify voice users into four categories, such as professional voice users and non-vocal professionals (physicians, teachers). While healthcare workers are generally considered non-vocal professionals, their frequent need to speak loudly in busy, noisy clinical settings

effectively places them among professional voice users.

Our findings provide critical insight into the vocal health of healthcare professionals, an under-recognized high-risk group. The high prevalence of voice problems and limited vocal hygiene awareness observed are comparable to other vocally demanding professions such as teaching, emphasizing the need for preventive measures.² The finding that 85% of participants reported at least one symptom supports the view that heavy workloads, noisy environments, and frequent loud communication directly contribute to vocal strain.¹⁰ Call center employees, a similar group experiencing occupational vocal strain, have shown effective amelioration through voice therapy.¹¹ A study on Turkish imams also demonstrated self-reported voice problems, though acoustic analysis did not substantiate them.¹² The most prevalent symptom, dry throat or burning (74%), may indicate underlying vocal fold dehydration, reflux, or laryngeal irritation, common issues in vocally stressed individuals.

The high rates of dysphonia and vocal fatigue reported indicate that improper or excessive voice use, combined with existing conditions, contributes to vocal strain.¹³ Occupational habits (speaking loudly, shouting, communicating in noisy environments) and personal behaviors (coughing, throat clearing, excessive laughter) negatively impact vocal health.⁵ Nearly 40% of participants reported speaking loudly or shouting frequently at work, confirming this as a key occupational risk factor for chronic vocal fold injury.^{14,15} Female individuals are reported to be at higher risk.¹⁶ This is compounded by identified risk factors like smoking and gastroesophageal reflux.^{17,18} Personal habits like caffeine/alcohol consumption and recreational voice demands in-

Table 3. Distribution of the participants according to the cut-off value of Turkish Vocal Handicap Index-10 scores, which is 7.

Variable	Category	n (%)	VHI-10 ≤ 7 (n)	VHI-10 > 7 (n)	p-value*
Necessity To Speak Loudly	Never or occasionally	30 (30.0)	23	7	0.045
	Frequently or always	70 (70.0)	38	32	
	Total	100 (100.0)	61	39	
Vocal fatigue	Never or occasionally	30 (30.0)	22	8	0.046
	Frequently or always	70 (70.0)	35	35	
	Total	100 (100.0)	57	43	
Self-reported knowledge of vocal hygiene	Yes	30 (30.0)	12	18	0.162
	No	70 (70.0)	18	52	
	Total	100 (100.0)	30	70	
Correctly answering vocal hygiene questions	Completely correct	54 (54.0)	18	36	0.514
	Partially or incorrectly	46 (46.0)	12	34	
	Total	100 (100.0)	30	70	
Formal Training in Vocal Hygiene	Yes	15 (15.0)	3	12	0.543
	No	85 (85.0)	27	58	
	Total	100 (100.0)	30	70	

*Fisher's exact test; VHI-10:Vocal Handicap Index-10 scores

crease risk, while adequate hydration may mitigate it.¹⁹

Other contributing factors to voice disorders include: voice use during laryngeal inflammation, alcohol/caffeine consumption, adverse medication effects, tobacco/secondhand smoke exposure, gastroesophageal reflux, and musculoskeletal tension.²⁰ In this study, participants with or without reflux symptoms exhibited identical VHI-10 median scores, which is 10. The fact that 42% of participants reported reflux indicates that this personal/pathological risk factor combination likely elevates voice disorder likelihood among professional voice users.

Low vocal health awareness (70% lacking knowledge, 85% no training) highlights how occupational and personal risk factors jointly contribute to voice problems, underlining the importance of vocal hygiene education. Vocal hygiene is a recognized, fundamental component of voice therapy.²¹ Regular education, review of occupational habits, and management of pathological risk factors are critical for preventing voice disorders and reducing functional impairment.

Our study evaluated voice-related quality of life using the VHI-10, yielding a median score of 10 (range: 0–29). The VHI-10 provides a rapid, practical means of evaluating the functional, physical, and emotional effects of voice disorders,²² and our scores reflect a measurable impact on participants' daily lives. The original VHI (30-item scale) was developed by Jacobson et al., with the VHI-10 short form developed by Rosen et al.²³ Higher scores indicate more severe problems, and the Turkish validity was established by Kılıç et al. in 2008.²⁴

Using the cut-off value of 7 reported by Tahir et al.,²⁵ participants who reported speaking loudly or experiencing vocal fatigue exhibited significantly higher VHI-10 scores, indicating a greater vocal impact. The lack of score differences by vocal hygiene knowledge or reflux diagnosis suggests that awareness alone does not ensure consistent application of vocal hygiene practices. This discrepancy may reflect differences in study populations or VHI-10's sensitivity. These findings emphasize addressing occupational and behavioral risk factors in voice health, highlighting the necessity of preventive programs. Improving voice quality among healthcare providers requires regular vocal hygiene training, instruction on proper voice use techniques, and reduction of workplace noise levels. In addition, incorporating periodic voice exercises and encouraging vocal rest can help prevent vocal fatigue and maintain long-term vocal health. Larger cohort studies are needed to confirm the clinical utility and cut-off validity of the VHI-10.

Only 14.1% of participants experiencing voice prob-

lems sought medical attention. This low rate is consistent with literature showing that less than half of individuals with voice issues consult professionals,³ indicating that voice problems are often overlooked. Despite easier access to otolaryngologists, the consultation rate among healthcare workers remained notably low.

In conclusion, this study reveals a high prevalence of voice problems among healthcare providers, emphasizing the influence of occupational risk factors and limited vocal hygiene awareness. The single-center and self-reported design limits the generalizability of these findings. Since all participants were recruited from one institution, the results may reflect specific working conditions or environmental factors unique to that setting, and reliance on self-reported data introduces the possibility of subjective bias. Therefore, multicenter studies involving larger and more diverse healthcare populations are recommended to validate and expand upon these results.

Ethics Committee Approval: The study protocol received official approval from the Education Planning Committee of Dr. Abdurrahman Yurtaslan Ankara Oncology Research and Training Hospital (Date: 05/08/2025, decision no: 20). All procedures complied strictly with the ethical principles of the Declaration of Helsinki.

Conflict of Interest: No conflict of interest was declared by the authors.

Author Contributions: Concept – SE, AD; Supervision – AD; Materials – SE; Data Collection and/or Processing – SE, AD; Analysis and/or Interpretation – SE, AD; Writing –SE, AD.

Peer-review: Externally peer-reviewed.

Other Information: This study was presented as an oral presentation at the 14th National Laryngology Congress, held in Sakarya on September 12–13, 2025.

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