



Original Research / Özgün Araştırma

Prevalence and risk factors for voice problems in imams

İmamlarda Ses Rahatsızlığı Prevelansı ve Risk Faktörleri

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ABSTRACT

Introduction: Voice problems are widespread in professions where the voice is actively used. Imams are a group where the voice is used professionally, The aim was to investigate the prevalence of voice problems in imams and to determine the potential risk factors. **Methods:** A questionnaire was developed in our clinic to obtain information about the voice load, prevalence of voice problems, habits and diseases affecting voice quality in 1500 imams randomly selected from mosques in the Kahramanmaraş region of Turkey. The completed forms of 514 imams (34% response rate) were included in the study. **Results:** It was determined that 36.6% of the imams included in the study had experienced voice problems in their occupation, and the most common reasons were seen to be reflux and upper respiratory tract infections. Lack of knowledge of correct breathing exercises and frequent clearing of the throat were significant risk factors. The imams who used a microphone did not smoke and had regular eating and drinking habits were determined to experience voice problems less frequently. **Conclusion:** As imams do not receive training on correct use of the voice, vocal hygiene and breathing during their religious education, voice disorders are frequently seen. To reduce the complaints of voice problems, training on correct use of the voice and points to which attention must be paid should be given in addition to religious training.

Key words: Imam, voice disorder, vocal hygiene, gastric reflux, questionnaire

ÖZET

Giriş: Ses problemi aktif olarak sesin kullanıldığı mesleklerde yaygındır. İmamlar profesyonel ses kullanıcılar grubunda olup ses bozuklukları gelişiminde risk altındadır. Bu çalışmanın amacı imamlarda ses sorunlarının yaygınlığını araştırmak ve muhtemel risk faktörlerini belirlemektir. **Yöntem:** Kahramanmaraş bölgesinde rastgele seçilen 1500 cami imamında ses yükü, ses bozukluklarının yaygınlığı, alışkanlıkları ve ses kalitesini etkileyen hastalıklar hakkında bilgi edinebilmek için kliniğimizce oluşturulan anket düzenlendi. Anketleri teslim eden 514 imamın bilgileri değerlendirildi. **Bulgular:** Çalışmamızda imamların % 36,6'sında görevleri sırasında ses sorunları yaşadığı görüldü. Reflü ve solunum yolu enfeksiyonları ses problemlerinin en yaygın sebebi idi. Doğru nefes egzersizini bilmeme, sık sık boğaz temizleme de önemli risk faktörleri arasında idi. Mikrofon kullanan, sigara içmeyen ve yeme içme alışkanlıkları düzgün olan imamlarda ses sorunlarının daha nadir olarak görüldüğü tespit edildi. **Sonuç:** İmamlarda dini eğitim sırasında doğru ses kullanımı, vokal hijyen ve nefes eğitimi almama nedeni ile ses bozukluğu şikayeti sık olarak görülmektedir. Ses şikayetlerinin azalması için dini eğitimin yanında sesin doğru kullanımı ve dikkat edilmesi gereken hususların eğitimi de verilmelidir.

Anahtar kelimeler: İmamlar, ses bozukluğu, ses hijyeni, eğitim, reflü, anket

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INTRODUCTION

The prevalence of voice problems in the general population is 6%-15%, and this rate increases in occupational groups where intense voice use is required.¹ Although the etiology is multifactorial, occupation is a significant factor in the prevalence of voice disorders. Lengthy periods of talking and environmental factors such as high levels of background noise, poor acoustics, and air pollution, increase this prevalence.² Koufman and Isaacson classified voice users according to the importance of voice quality in their professions. Accordingly, an elite group was formed of professional singers and actors and a professional class of clerics, teachers, teaching assistants and lawyers, and for all of these, voice problems could have a negative effect on their career.^{2,3}

It has been reported that voice problems limit the work of 38% of teachers and cause financial loss for 1 in 3 teachers.⁴⁻⁶ In another study, it was reported that the risk of changing work was 12.5-fold greater for teachers with voice problems compared to those without these problems. Although imams are professional voice users, it is a profession that generally requires a moderate degree of good voice quality. In Turkey, imams manage religious services in mosques 7 days a week. At weddings, funerals, and meetings, they also undertake functions of reading the Koran, chanting and giving sermons to large congregations. During the summer in the school holidays, they also give religious education lessons in mosques, although their teaching hours are not as long as those of regular teachers. Permanent voice impairment can negatively affect the professional performance of imams and this may sometimes result in leaving their duties or being transferred to an administrative position.⁷

To the best of our knowledge, there has been no previous study related to voice problems in imams. The aim of this study was to determine the prevalence of voice problems in imams and to identify the risk factors for voice problems.

METHOD

Approval for this prospective study was granted by the Ethics Committee of Kahramanmaraş Sutçu Imam University (decision no. N 11 2015/10, protocol no: 132, dated 27.07.2015). Informed consent was obtained from all the study participants. The study was applied in accordance with the ethical standards of the Declaration of Helsinki. Subjects were

excluded from the study if they had the history of laryngeal, thyroid and neck surgery.

On the first Tuesday of every month, approximately 1500 imams meet for training. A questionnaire was distributed at these meetings for completion to obtain information about demographic features, the time in the profession using the voice, the time per day of voice use, microphone use, the frequency of upper respiratory tract infections, allergies, smoking status, the frequency of tea and coffee consumption, night-time eating habits, laryngopharyngeal reflux and family history of voice disorders, and the frequency of symptoms related to voice problems such as voice restriction, clearing the throat, voice fatigue and forced use of the voice. To evaluate the effect of the duration of work on the voice, the subjects were separated into 2 groups as those >10 years and <10 years in the profession.

Statistical analyses of the study data were made using SPSS 15.0 software (SPSS Corporation, USA). Descriptive statistics were used to define the demographic information (age, years of experience, daily use of voice etc). Pearson's correlation test was used because the parameter data after the descriptive statistics showed normal distribution. The Chi-square test, Fisher's Exact test, the t-test and the Mann Whitney U-test were applied in the analyses. A value of $p < 0.05$ was considered statistically significant.

RESULTS

Of the 1500 questionnaires distributed, 734 were returned. Due to incomplete information, the forms of 220 imams (14.7%) were excluded from the study. The completed forms of 514 imams (34% response rate) were included in the study. The mean age of the imams was 37.1 ± 12.4 years (range, 19-64 years). The duration of the imams in the profession was mean 15.6 ± 11.8 years (range, 2-45 years Table 1).

	mean±SD	range
Age (years)	37.1±12,4	19-64
Number of years in occupation	15.6±11,8	2-45
Daily voice use (hours)	4.5±2,9	2.8

SD: Standard deviation

Voice problems were reported by the participants as generally by 190 (36.8 %) and sometimes by 113 respondents. The others

responded as occasionally or never. In response to the question of the frequency of forced use of the voice, 200 (39.3%) responded as generally, 71 as sometimes and 129 as rarely or never. Voice restriction was reported as generally by 52 and sometimes by 141 (37.5%) (Table 2).

	Often n (%)	Rarely n (%)
Voice problems	190 (36.8)	324 (63)
Forced voice use	200 (39.3)	314 (61.08)
Voice restriction	193 (37.5)	321 (62.5)

Of the 514 imams in the study, 62 (12%) reported that they had knowledge of correct voice use and only 12 (2.3%) reported that they had received voice use training. Of those who had received training, 5 reported that they had been informed by physicians when they presented at the Ear, Nose and Throat Clinic because of voice complaints.

Occasional cigarette smoking was reported by 37 (7.2 %) imams and no relationship was observed with voice disorders ($p>0.05$). The voice disorder risk factors of allergies, upper respiratory tract infections, reflux, throat clearing, cigarette smoking, family history of voice disorders, tea and coffee consumption and microphone use are shown in Table 3.

	Often [n: (%)]	Rarely/never [n: (%)]
Cigarette smoking (477-no)	0	37 (7.2)
Allergies	159 (30.9)	355 (69.1)
Upper respiratory tract infection	190 (37)	324(63)
Throat clearing	271 (52.7)	243 (47.3)
Reflux	197 (38.2)	317 (61.7)
Family history of voice problems	0	24 (4.7)
Tea and coffee consumption	374 (72.8)	140 (27.2)
Night-time eating	141 (27.4)	373 (72.8)
Microphone use	209 (40.7)	305(59.3)

In the imams with frequent voice problems, complaints of allergies, upper respiratory tract infections, throat clearing, and reflux were determined to be frequent ($p<0.001$) (Table 4).

Voice problems in a first-degree relative were reported by 24 (4.7%) of this group of imams. The voice complaints in those with familial disorders were not found to be significant ($p>0.05$).

The time in the profession was >10 years in 202 imams and <10 years in 312. The effect of the time in the profession on voice problems was found to be statistically significant in those working for longer than 10 years ($p<0.05$). While 336 (65.4%) imams stated that they used their voice for <6 hours per day, 178 (34.7%) stated voice use of 6 hours or longer per day. A statistically significant increase in vocal symptoms was observed in those who used their voice for 6 hours or more per day ($p<0.05$). Voice problems were reported to increase due to summer courses during the school holidays by 457 (88.9%) imams. A statistically significant increase was observed in voice problems during the summer because of working for more than 6 hours per day, dealing with young age groups in a noisy environment and needing to raise the voice more ($p<0.001$). A microphone was used by 305 imams and not by 209. There was observed to be an inverse correlation between microphone use and voice problems ($p<0.05$).

DISCUSSION

According to the results of this study, although the vast majority of imams experience voice problems at certain times in their professional life, this problem is continuously experienced in general by 36.6%. Upper respiratory tract infection was seen to be the most common cause leading to voice problems. Other risk factors were reflux, frequent throat clearing, not using a microphone, allergies, not having any voice-breathing training and vocal hygiene. That the prevalence of voice problems was high in the current study could be due to the 514 volunteers who completed both questionnaires from the total 1500 imams being those who suspected that they had voice problems.

The daily voice use of the imams is in the prayers 5 times a day in the routine daily worship and giving lessons in the summer over a period of 2-3 months.

Table 4. Distribution of lifestyle and health-related factors in imams with voice problems

	Voice fatigue		Voice restriction		Forced voice use	
	R	p	R	P	R	p
Duration in occupation (>10 years)	0.204	0.001	0.175	0.000	0.235	0.001
Daily voice use (>4 hours)	0.056	0.211	0.104	0.019	0.162	0.001
Family history of voice problems	0.079	0.075	0.046	0.119	0.012	0.141
Microphone use	-0.222	0.001	-0.199	0.001	-0.204	0.001
Upper respiratory tract infections	0.374	0.001	0.246	0.001	0.396	0.001
Allergies	0.327	0.001	0.275	0.001	0.073	0.001
Smoking	0.020	0.654	0.029	0.753	0.068	0.125
Frequent throat clearing	0.475	0.001	0.424	0.001	0.448	0.001
Reflux	0.272	0.001	0.315	0.001	0.289	0.001
Night-time eating	0.166	0.001	0.138	0.001	0.182	0.001
Drinking>3 cups of coffee per day	0.090	0.044	0.131	0.003	0.091	0.04

*p<0.05 **p<0.001 (pearson correlation test)

Although imams constitute an elite professional section in respect of voice use, as the working hours are not as long as those of teachers, they are not in a comparably noisy environment, and they can use a microphone for prayers and sermons, the most important reason for voice problems is not voice load. Furthermore, voice problems were seen at a higher rate in the imams who did not use a microphone compared to those who did. Thus, it can be considered that microphone use could decrease voice problems as there is no need to raise the voice.

The significant risk factors causing voice problems in the imams of this study were seen to be upper respiratory tract infection, allergies, reflux, and frequent throat clearing. Frequent throat clearing because of reflux, retronasal discharge or allergy causes mechanical trauma in the larynx with burning and dryness in the throat resulting in repeated throat clearing and talking loudly to compensate for the voice quality and thus a vicious circle is established. Previous studies have reported that upper respiratory tract infections, reflux, insufficient water intake, talking loudly and frequent throat clearing are factors that have a negative effect on voice quality.⁸⁻¹³ As throat clearing causes strong aperiodic adduction of the vocal folds, it

is thought to be one of the most common forms of vocal trauma.¹⁴

Regular eating habits, plentiful fluid intake and precautions against reflux will probably reduce the extent of voice problem complaints. In a survey study of Jewish cantors (leading the religious music) Hapner and Gilman¹² reported that 65% had voice problems and the risk factors for these were a long working week, reflux and allergies. A study in Brazil of 56 priests reported voice problems with symptoms of throat clearing(78.5%), restricted voice(57.1%) and laryngeal irritation(51.8%).¹⁵ In another study conducted on Lutheran priests, 21% were determined with voice problems. The most commonly reported symptoms were frequent throat clearing, cough, and a tight and restricted voice.² Irema Hocevar-Boltezar¹³ investigated the prevalence of voice problems in Catholic priests using a questionnaire in which it was reported that 85.6% of the priests experienced voice problems for a certain period in their profession and the most significant factors were reflux, asthma allergy, and cigarette smoking. In the current study, similar causes were found in the etiology of the voice problems of the imams.

There are also additional duties of reading the Koran, delivering sermons and chanting at weddings and funerals.⁷ As many imams do not like or trust their voice, they do not chant. Those who do the chant and have not had voice training have an increased rate of voice complaints because of overload. The provision of education and training related to vocal hygiene, breathing exercises, and correct voice use could be effective in reducing these problems for imams.

There is known to be a need for voice use training for those who actively use the voice professionally.¹⁶ Individuals experiencing voice problems are seen more often during training.⁹⁻¹² In studies conducted on teachers, a history of voice problems during training has been identified as a risk factor for later voice complaints.^{4,6,10,11} Knowledge of vocal hygiene, breathing exercises and using correct vocal techniques reduce voice fatigue and increase self-confidence when talking.¹⁷ The results of the current study showed that the lack of knowledge and training of the imams in voice use was a significant risk factor for voice problems, whereas those who were knowledgeable, had received training and applied it in practice reported fewer voice complaints.

Training for teachers provides a positive effect on voice quality.¹⁵ Before imams start their duties as an imam, necessary processes such as voice training, diction training, and ENT examination are not applied. This leads to problems such as complaints of not liking the sound of the voice after having started the work. In the current study, that the few imams who had received voice training had no voice complaints show the necessity for the provision of training in breathing exercises related to voice use, vocal hygiene, and correct voice use before the imams take up positions. Limitation of study is the lack of Otolaryngologic physical examination, especially laryngoscopic examination and voice analysis of imams.

CONCLUSION

Voice problems are commonly seen in imams. Reflux, frequent throat clearing, lack of attention to vocal hygiene and lack of voice training are risk factors for voice problems. During training for professions that require the use of the voice, the provision of training related to voice use and hygiene would decrease the prevalence of voice problems.

Ethical considerations

Ethical issues (including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Ethics

Ethics Committee Approval: Prospective study. Approval for the study was granted by the Clinical Research Ethics Committee Kahramanmaraş Sütçü Imam University (decision no. N 11 2015/10, protocol no: 132, dated 27.07.2015)

Informed Consent: It was taken.

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