

# Risk of Dysphonia in Legal Professionals: Proposal for a Screening Protocol

## Riesgo de disfonía en profesionales del derecho: propuesta de un protocolo de detección

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### Declaration of interests

The authors have declared that there is no conflict of interest.

### Data availability

All relevant data is in the article. For further information, contact the corresponding author.

## Abstract

**Introduction.** Due to the communicative requirements inherent to the profession, the legal professional benefits from speech therapy monitoring for the proper use of the voice and to avoid the occurrence of vocal disorders. The development of specific instruments will contribute with more relevant data to guide this monitoring.

**Objective.** To verify the applicability of the General Dysphonia Risk Screening Protocol (DRSP-G) and the Specific Dysphonia Risk Screening Protocol for Legal Professionals (DRSP-LP) and to correlate the average scores of both with vocal deviation, sex, age, professional performance time, vocal signs and symptoms, and vocal self-assessment.

**Methods.** Fifty legal professionals participated. All participants completed the DRSP-G and DRSP-LP and recorded their voices for detection of the presence of altered vocal quality.

**Results.** Most participants presented a high risk of dysphonia, which was higher in men. Altered vocal quality was observed in 34% of the participants. The items with the highest scores in the DRSP-G were talking a lot (76%), excessive daily coffee intake (70%), contact with smokers (60%), and insufficient hydration and sleep (48%); in the DRSP-LP, alcohol consumption (68%) and exposure to air conditioning (64%). There was no correlation between risk scores and the degree of dysphonia, or with age or length of professional experience. The DRSP-G score correlated with vocal signs and symptoms and vocal self-perception.

**Conclusions.** The joint application of the DRSP-G and the DRSP-LP enabled a quantitative and qualitative analysis of risk factors for dysphonia in legal professionals.

## Keywords

Voice; voice disorders; voice quality; speech therapy; voice training; speech; communication; lawyers; occupational health; surveillance of the workers health; occupational health policy.

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## Resumen

**Introducción.** Debido a las exigencias comunicativas inherentes a la profesión, el profesional del derecho se beneficia del seguimiento logopédico para el correcto uso de la voz y para evitar la aparición de trastornos vocales. El desarrollo de instrumentos específicos contribuirá con datos más relevantes para guiar este seguimiento.

**Objetivo.** Verificar la aplicabilidad del Protocolo General de Detección de Riesgo de Disfonía (DRSP-G) y el Protocolo de Detección de Riesgo Específico para Profesionales del Derecho (DRSP-LP) y correlacionar las puntuaciones de ambos con varias variables de interés.

**Metodología.** Participaron 50 profesionales del derecho. Todos completaron el DRSP-G y DRSP-LP y grabaron sus voces para detectar la presencia de alteraciones en la calidad de la voz.

**Resultados.** La mayoría presentó un alto riesgo de disfonía, que fue mayor en los hombres. Se observó alteración en la calidad de la voz en el 34% de los participantes. Los ítems con puntajes más altos en el DRSP-G fueron hablar mucho (76%), ingesta diaria excesiva de café (70%), contacto con fumadores (60%) e hidratación y sueño insuficientes (48%); y en el DRSP-LP, consumo de alcohol (68%) y exposición al aire acondicionado (64%). No hubo correlación entre las puntuaciones de riesgo y el grado de disfonía, ni con la edad o la antigüedad profesional. La puntuación DRSP-G se correlacionó con los signos y síntomas vocales y la autopercepción vocal.

**Conclusiones.** La aplicación conjunta del DRSP-G y el DRSP-LP permitió un análisis cuantitativo y cualitativo de los factores de riesgo de disfonía en profesionales del derecho.

## Palabras clave

Voz; trastornos de la voz; calidad de la voz; logopedia; entrenamiento de la voz; habla; comunicación; abogados; salud laboral; vigilancia de la salud del trabajador; política de salud ocupacional.

## Introduction

In several legal careers, such as advocacy, magistracy and prosecution, there is a relevant communicative demand. In situations such as trial sessions, the good oral argument of the defense attorney, or the prosecutor, can be the differential for the final verdict. Jurists who left their mark on history, as a rule, are known for being—or having been—great orators. In law, it is necessary to know how to communicate well, and argue and speak clearly and assertively [1], in addition to persuading the client and transmitting credibility [2].

Impressions about trustworthiness, confidence, and aggressiveness can be processed quickly at the initial contact [3] and are very important elements in human communication and in the performance of legal professionals.

In this context, the voice plays a relevant role. A study based on the recordings of 634 defenders of the Supreme Court of the United States found that, among men, those whose voice gave the impression of less masculinity were more often successful, and the voice was the only personality trait that showed this difference. An excerpt

from the introductory statement, which is used by everyone, was studied, even though it is short, and showed that the Supreme Court tends to react adversely to more masculine voices, considered more dominant and aggressive [3].

The statute of the Brazilian Bar Association provides guidelines regarding the language to be used by these professionals [4]. If the professional does not verbally present themselves competently, the consequences for the cause they defend—and for their own career—can be very negative, since ineffective communication can give rise to interpretations and decisions opposite to those desired. The good news is that communication skills can be developed and improved with knowledge and training [1].

It turns out that, even though these skills are fundamental for professional success, preparation during academic training is considered insufficient [1]. Many legal students, as well as professionals, end up searching for extracurricular training in courses, books, and videos, which requires investment and will not always meet their needs. In addition, these materials are more focused on vocal improvement and will not contemplate the rehabilitation of possible communication disorders that may be present, such as difficulties in articulating speech sounds and the occurrence of vocal disorders.

As well as voice professionals in general (teachers, announcers, singers, lecturers, among others), individuals who work in the legal system can also develop work-related voice disorders. This can lead to difficulties in the development of their work activities, with the due financial repercussions, in addition to impacting the individual's social and professional identity [5].

Vocal disorders can result from issues related to the use of the voice at work, such as talking a lot or speaking loudly, and/or from inadequate vocal adjustments, environmental aspects, such as speaking in the presence of noise, dust, and/or inadequate ergonomics [5,6]. In addition, more personal aspects, such as age, anatomical configuration of the larynx, the occurrence of diseases, use of medication, smoking, poor hydration, emotional issues, and the stress inherent to the profession can influence the voice [5,7,8]. In law, the more formal attire required in most workplaces can also cause bodily discomfort, with negative repercussions on vocal adjustments. Clothes that are tight around the waist can make it difficult for the diaphragm to move, which will interfere with breathing support, and can compress the esophagus and facilitate gastroesophageal reflux, while clothes or accessories that are tight around the neck, such as ties and necklaces, can increase cervical tension and make breathing difficult. In addition, the type of fabric and cleaning products used, both when washing clothes and cleaning accessories, can increase the risk of allergies [9,10]. High or uncomfortable shoes can interfere with body posture and, consequently, with phonation [10].

A study carried out in 1997 highlighted the professional use of the voice by lawyers, judges, and prosecutors with high vocal demands [11]. Research carried out with Brazilian public prosecutors identified self-reported altered vocal quality in a third of the participants, in addition to complaints from the majority, regarding lack of motivation, insecurity, tension, and difficulty in persuading the listener; among women, all reported insecurity about public speaking [2].

However, the fact that there are few publications involving this professional category is noteworthy, which suggests that the focus has been more clinical and the actions more individualized. Over the years, the scientific production on voices in professionals has concentrated a lot on studies of teachers' voices, and it is essential that research be carried out to investigate the occurrence and factors associated with dysphonia in other occupational groups [12].

Faced with the various factors that can impact the voice/communication of legal professionals, it is necessary to develop and use specific instruments that can provide quantitative and qualitative data for the speech therapist who will care for these individuals, whether for vocal/communicative improvement, or for rehabilitation of voice/communication disorders.

The General Dysphonia Risk Screening Protocol (DRSP-G) was proposed by Nemr et al. [13] and proved to be effective in differentiating individuals with and without vocal disorders. The instrument allows the calculation of a total risk score, in addition to qualitatively analyzing negative vocal signs and symptoms, aspects related to lifestyle and voice use, comorbidities, and other factors that may increase the risk of developing dysphonia. Cut-off scores have been established for a high risk of dysphonia by age group and sex. This tool can be applied in screenings with large populations and, in addition to its effectiveness being independent of the laryngeal diagnosis, its score correlated with the general degree of vocal deviation and with the voice handicap index [13,14]. As it is a general risk protocol, its application must always be complemented with a specific risk screening tool for that particular professional category. There are specific screenings for journalists [15], teachers [16], theater actors [17], and musical theater actors [18].

Since instruments of this nature were not found in the scientific literature, which consider the communicative peculiarities of legal professionals, the present work aimed to propose and analyze the applicability of the Specific Dysphonia Risk Screening Protocol for Legal Professionals (DRSP-LP), applied together with the General Dysphonia Risk Screening Protocol (DRSP-G). In addition, to correlate the average scores of both with vocal deviation, sex, age, professional practice time, vocal signs and symptoms, and vocal self-assessment.

## Method

The sample was formed for convenience based on the contact of one of the authors with a subsection of the Brazilian Bar Association. Legal professionals of both sexes could participate, regardless of their age, the presence of vocal complaints, and their job position.

In total, 50 individuals participated, 25 women and 25 men. Ages ranged from 25 to 74 years (mean=43.3 years; median=41 years; SD=12.93). The length of professional activity ranged from six months to 50 years (mean=14.4 years; median=15 years; SD=11.55) and the majority worked as lawyers. All participants signed the Informed Consent Form.

First, the DRSP-G was applied, and the risk score was calculated. This score can vary from 0 to 131, and the higher the score, the higher the risk of developing altered vocal quality. Cut-off points for a high risk of dysphonia are 29.25 for women and 22.75 for men [13]. Based on this cut-off, the participants of the present research were classified as high or low risk of dysphonia.

Then, the DRSP-LP (see [Appendix](#)) was applied, which was developed for this research and finalized after carrying out a pilot study and necessary adjustments. This instrument consists of 16 questions, with the aim of obtaining specific information about the use of voice by legal professionals. The score ranges from 0 to 100 and, as in the DRSP-G, the higher the score, the greater the risks for the development of dysphonia.

In order to prepare the DRSP-LP, in addition to the literature search, an open interview was conducted with one of the lawyers in the aforementioned subsection, in which he was asked to talk about various aspects related to the use of voice in his professional day-to-day

and what he observed in his professional colleagues. The questionnaire was then formatted and applied with three other law professionals. In addition, a speech therapist with experience in professional voice also reviewed the questionnaire. From this application and review, some points were adjusted and we reached the final version used in this study.

In addition to being considered individually, the DRSP-G and DRSP-LP scores were added to obtain the final risk score.

Vocal self-assessment was analyzed using a 10 cm visual analogue scale, where 0 (zero) means no altered vocal quality and 10 (ten) means maximum altered vocal quality, considering the previous two weeks.

For voice recording, an ASUS K45VN notebook, Audacity program, and AKG headset microphone, model 520 were used. Vocal tasks of the CAPE-V protocol (sustained vowels, sentences, and spontaneous speech) were proposed, translated into Brazilian Portuguese [19]. The auditory-perceptual vocal analysis was performed by a voice specialist speech therapist, with more than fifteen years of experience in the area and high intra-rater reliability measured in a previous study [17]. Based on the general degree of vocal deviation (G) in the CAPE-V, participants were classified as without altered vocal quality (G less than or equal to 35.5) or with altered vocal quality (G greater than 35.5). In the presence of altered vocal quality, the degree of deviation was also considered: mild (G between 35.6 and 50.5), moderate (G between 50.6 and 90.5) or extreme (G above 90.5) [20].

Both the voice recording and the completion of the questionnaires took place in the subsection itself, individually, in quiet rooms (the noise level was below 50dB, measured using the Center® decibel meter, model 322).

The descriptive statistical analysis considered the risk of dysphonia, the presence of altered vocal quality, the items with the highest scores in both questionnaires, and the most prevalent vocal signs and symptoms. For the inferential statistical analysis, the risk of dysphonia was compared between sexes, in addition to the investigation of the correlations between the means of each score (DRSP-G, DRSP-LP, and final) and the general degree of dysphonia, as well as between the means of each score and the following variables: sex, age, length of professional activity, vocal signs and symptoms, and vocal self-assessment. The Chi-Square, and Spearman Correlation Coefficient tests were used, with a significance level of 5% ( $p \leq 0.05$ ).

## Ethical aspects

This is a cross-sectional observational study approved by the Research Ethics Committee of our institution (Protocol 2,327,692).

## Results

Among the 50 participants, the majority (58%) presented a high risk of dysphonia (Table 1). There was a difference between sexes in relation to the risk of dysphonia, with a predominance of high risk among men (Table 2).

Among the participants, 17 (34%) presented altered vocal quality, 14 (82%) of mild degree, 2 (12%) of moderate degree, and 1 (6%) of extreme degree.

**Table 1. Distribution of risk scores in relation to the sex of the participants.**

		Sex	
		Female	Male
DRSP-G Score	Mean	30.02	30.24
	Median	28.00	29.00
	Standard deviation	11.57	14.48
	N	25	25
DRSP-LP Score	Mean	27.32	26.92
	Median	26.00	27.00
	Standard deviation	9.53	9.21
	N	25	25
Final Score	Mean	57.30	57.04
	Median	56.00	56.00
	Standard deviation	17.27	19.49
	N	25	25

**Table 2. Distribution of participants based on dysphonia risk classification, according to sex.**

Dysphonia risk classification based on the DRSP-G score	Sex						p-value
	Female		Male		Total		
	N	%	N	%	N	%	
High risk	11	44	18	72	29	58	0.044*
Low risk	14	56	7	28	21	42	
Total	25	50	25	50	50	100	

**Note.** \* Statistically significant; chi-square test.

Regarding the DRSP-G data, the following items stood out: talking a lot (76%), excessive daily coffee intake (70%), contact with smokers (60%), insufficient hydration and sleep (48% each), habit of shouting (15%), gastroesophageal reflux (18%), and use of medications that interfere with the voice (6%). In the DRSP-LP: alcohol intake (68%), voice use in an air-conditioned room (64%), teaching activities (26%), smoking (14%), and use of tight clothing in the laryngeal and /or abdominal region (10%). Most professionals reported using their voice at work for between two and five hours a day.

The most prevalent vocal signs and symptoms were dry throat (72%), hoarseness (52%), throat clearing (52%), and sore throat (48%).

There was no correlation between each risk score (DRSP-G, DRSP-LP, and final) and the degree of dysphonia (G of CAPE-V) (Table 3).

There was no correlation between each risk score and age or with the time of professional practice (Table 4). The score in the sub-item “vocal signs and symptoms” correlated directly with the means of the three scores, with the strongest correlation with the DRSP-G. There was a weak correlation between vocal self-assessment and the DRSP-G score (Table 4).

**Table 3. Correlation between the General Degree of Dysphonia and the DRSP-G, DRSP-LP, and Final Scores.**

		G CAPE-V
DRSP-G Score	Correlation coefficient	0.012
	Sig. (p)	0.936
	N	50
DRSP-LP Score	Correlation coefficient	-0.232
	Sig. (p)	0.104
	N	50
Final Score	Correlation coefficient	-0.067
	Sig. (p)	0.645
	N	50

**Note.** Spearman Correlation Coefficient test.

**Table 4. Correlation between the scores of the DRSP-G, DRSP-LP, and Final Score and the variables age, length of professional practice, subscores of vocal signs and symptoms, values of the visual analogue scale of vocal self-assessment.**

Scores		Age	Length of professional experience	Vocal signs and symptoms	Vocal self-assessment
DRSP-G	Correlation coefficient	-0.003	-0.073	.910	.325
	Sig. (p)	0.985	0.616	0.000*	0.021*
	N	50	50	50	50
DRSP-LP	Correlation coefficient	-0.103	0.023	.356	-0.039
	Sig. (p)	0.475	0.875	0.011*	0.791
	N	50	50	50	50
Final	Correlation coefficient	-0.016	-0.027	.799	0.227
	Sig. (p)	0.914	0.851	0.000*	0.113
	N	50	50	50	50

**Note.** \* statistically significant; Spearman Correlation Coefficient test.

## Discussion

The current study was carried out based on the need to better understand the use of the voice and the risk of dysphonia in individuals who work in the legal area, considered professional users of the voice and who, as such, are more subject to the occurrence of functional or organic dysphonia throughout their professional life [12].

The method used made it possible to investigate the participants in detail with regard to the risk of dysphonia and aspects related to the presence of altered vocal quality, in addition to specific factors related to the exercise of the profession.

Most professionals had a high risk of dysphonia and the mean DRSP-G scores found (30.24 in men and 30.02 in women) were above the cut-off point for high risk of dysphonia [13]. These data agree with the literature that highlights the legal professional as a worker with great vocal demands and without training for this demand, which exposes them to risk factors for vocal problems and leads to impacts on their career [1,5,11].

The high risk of dysphonia was more prevalent among men. Although women have a laryngeal configuration that is more prone to vocal damage [21,22], these data underscore that among legal professionals men should be included in health promotion actions, aiming at reducing these factors that lead to high risk.



In addition, approximately a third of the sample presented altered vocal quality, although the majority were mild. A study with public prosecutors also found this proportion [2], but, unlike the present study, the authors analyzed the presence of self-reported alterations. It is known that people who use their voices at work often have vocal problems and that the high prevalence is due to the vocal demand of in the profession, issues related to the work environment, and personal factors [5,12]. A recent study carried out with the general population in Stockholm, Sweden, with more than 114,000 adults of both sexes, found a prevalence of dysphonia of 16.9% [23], well below the one found in the present study, which demonstrates the impact of the occupational issue. Professional voice users may be up to four times more likely to have a voice disorder compared to other workers [12].

Considering the factors related to the onset of dysphonia, it is believed that there is a complex relationship between diverse aspects that interfere in distinct ways with different people [5], which is why the risk screening for dysphonia considers multiple factors in an associated manner [13].

Excessive use of the voice stands out, and in this study the aspect most cited by the professionals was talking a lot, a characteristic of the vocal demands of the profession [11]. The constant use of the voice can cause trauma to the vocal cords and lead to the appearance of an acute inflammatory process in the laryngeal mucosa [8], justifying the appearance of vocal symptoms, such as dry throat, hoarseness, burning and pain in the throat, and vocal fatigue, among others. Most of the professionals in the present study reported the symptoms listed. Another study also verified the presence of vocal complaints in legal professionals, with emphasis on dryness and burning in the throat, in addition to frequent pain in the shoulders and neck [11]. Furthermore, speaking a lot and with effort can also lead to the development of glottic gaps and, subsequently, the appearance of vocal cord nodules [22]. In another study, around 41% of law professionals reported a worsening of their voice shortly after using it at work [11].

Most professionals reported using their voice at work for between two and five hours a day, which is a considerable amount of time, although less than what was observed in another study with legal professionals, where most reported using their voice for more than six hours [11]. When compared to professors, the most studied professionals when it comes to this topic, legal professionals have a lower vocal demand, which may explain, in part, the lower prevalence of altered vocal quality compared to professors, despite the high risk for dysphonia [24] and the specific use in situations of great tension [11].

Most legal professionals believe that their voices have to be convincing and strong [11], which can also lead to inadequate and effortful adjustments if the individual does not have the knowledge or practice to confer these attributes to their communication.

In addition to vocal demand, other items that had a relevant score in the DRSP-G, such as excessive daily coffee intake, contact with smokers, insufficient hydration and sleep, the habit of shouting, gastroesophageal reflux, and use of medications that interfere with the voice, also appear in studies with other professional categories that use their voice professionally and have vocal problems [25,26]. All these factors can interfere with vocal well-being [10,27].

The most relevant sub-items of the DRSP-LP were alcohol intake, voice use in air-conditioned environments, teaching, and smoking. Another study with these professionals highlighted smoking, throat clearing, and air conditioning [11]. The deleterious effects of smoking and alcohol on the voice are well known, and are always addressed when considering vocal well-be-

ing [28–30]. Air conditioning can dry out the vocal tract due to the reduction in air humidity, which can cause the person to make an effort when speaking, attacking the vocal cords [10]. For legal professionals who work as teachers, there is a cumulative effect of activities with vocal overload. Teaching is a high-risk activity for the development of dysphonia [12,31].

The use of tight clothes in the laryngeal and/or abdominal region was reported by 10% of the participants in this study, being, for these individuals, another factor to be considered in guidance on vocal well-being [10].

In the current study, the risk scores were shown to be independent of the degree of dysphonia, that is, the risk of dysphonia is more related to the presence of altered vocal quality than to the degree of this alteration. This may be due to the concentration of a mild degree of dysphonia among people with altered vocal quality. A previous study found a correlation between the risk of dysphonia and the degree of alteration, but the study included a more varied sample in relation to different vocal disorders and varied degrees of alteration [14].

Age and length of professional activity had no impact on the risk of dysphonia. The sample consisted mainly of adults, with few participants over 65 years of age, a period in which a greater impact of age on voice would be expected [32]. A study with prosecutors found a higher occurrence of altered vocal quality among older participants [2]. It is worth noting that the time of professional performance in this study was slightly lower than in the study with prosecutors [2]. In addition, the prosecutors mentioned worsening in communication over the years of professional practice, more frequently among women. Furthermore, participants with more time in the profession felt more insecure and tense in relation to their communication [2].

As for the positive correlation between vocal signs and symptoms and the DRSP-G score, this was expected due to the fact that this block of questions contributes to a large part of the score [13]. In addition, other studies have found more prevalent negative vocal signs and symptoms among professional voice users [33] and as predictors of the risk of dysphonia and the presence of altered vocal quality [26,34].

The correlation between vocal self-assessment and the DRSP-G risk score showed that lawyers who rated their voices as more altered scored higher on the DRSP-G and therefore had a higher risk of dysphonia. This indicates that the presence of risk factors is impacting vocal quality and that they are able to perceive the alterations present, which is very promising for the therapeutic process [35].

The present work stands out for addressing the measurement of the risk of dysphonia and the presence of vocal disorders in legal professionals, proposing a specific dysphonia risk protocol for these professionals. The field of professional voice assessments requires studies that investigate the occurrence and factors associated with dysphonia, expanding to other occupational groups besides teachers [12].

The findings showed the importance of developing actions with these professionals, far beyond vocal rehabilitation, aimed at preventing dysphonia and promoting vocal well-being, considering personal, environmental, and work organization aspects. In addition to awareness and practice regarding the proper use of the voice, it is also necessary to include knowledge about the risk factors to which these individuals are exposed, whether occupational or not. These actions may even be collective and take place in work environments, as well as in universities and the Public Ministry [2].

Research with more varied samples in terms of age, length of professional activity, position held by the individual, subsection, city and state of activity may expand the study on the risk of dysphonia and degree of altered vocal quality among these professionals. Although the sample was composed for convenience, it was quite similar in terms of sex distribution and mean age in a study carried out with Brazilian prosecutors [2].

Likewise, the deepening of the qualitative analysis of variables that may interfere with the appearance of altered vocal quality in this population can be considered, as well as the analysis of the impact of the voice on the quality of life and vocal acoustic and expressiveness analysis.

It is worth noting that the PRRD makes it possible to analyze the risk of dysphonia, regardless of the etiology of the change in voice quality. Thus, it can be applied even in the absence of laryngeal examination.

The DRSP-G measures the general risk for the development of dysphonia and should be associated with the investigation of specific questions about professional practice. Thus, the joint application of these two protocols, DRSP-G and DRSP-LP, is indicated to assess broadly, and also more precisely, the risks that these professionals present for the development of altered vocal quality. From the mapping of the most prevalent risks, vocal health promotion actions can be better outlined.

## Conclusions

With the aim of analyzing the risk of dysphonia in legal professionals, a specific questionnaire was created and applied.

The application of the DRSP-LP with the studied population brought important information for the care of these professionals. The joint application of the DRSP-G and DRSP-LP proved to be interesting for the quantitative and qualitative analysis of risk factors for dysphonia in legal professionals.

Most participants presented a high risk of dysphonia, with a predominance among men. Approximately a third of the participants had altered vocal quality, most of which were mild. Talking a lot, excessive daily coffee consumption, contact with smokers, insufficient hydration and sleep, alcohol intake, and voice use in air-conditioned environments were the most prevalent risk aspects. The predominant vocal signs and symptoms were dry throat, hoarseness, and throat clearing.

The DRSP-G risk score showed a positive correlation with vocal signs and symptoms and vocal self-assessment.

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## Appendix

### Specific Dysphonia Risk Screening Protocol for Legal Professionals (DRSP-LP)

**NAME:** \_\_\_\_\_ **DoB:** \_\_\_ / \_\_\_ / \_\_\_

1a. Time of professional experience: \_\_\_\_\_

1b. Using the scale below, mark the number that best represents the importance of your voice for the exercise of your profession:

1 = Not at all important    2=Little important    3=Important    4=Very important    5= Essential

VPD: 2. Average voice usage time **per day**:

2.1. Weekdays: works \_\_\_\_\_ hours and uses voice for \_\_\_\_\_ hours

*(consider 0 = up to 2 hours of use/day; 1 = between 2.01 and 5.00 hours; 2 = between 5.01 and 8.00 hours; 3 = over 8 hours of use/day)*

2.2. Weekends: works \_\_\_\_\_ hours and uses voice for \_\_\_\_\_ hours

*(consider 0 = up to 2 hours of use/day; 1 = between 2.01 and 5.00 hours; 2 = between 5.01 and 8.00 hours; 3 = over 8 hours of use/day)*

2.3. Takes breaks that allow the voice to rest? ( ) no    ( ) yes

*(consider 1 = no; 0 = yes)*

WUC: 3. Do you practice warming up/cooling down of your voice? ( ) no    ( ) yes

*(consider 0 = yes, warming up and cooling down; 2 = warming up only or cooling down only; 3 = no warming up or cooling down)*

TRN: 4. Have you received any training on vocal health care?( ) yes    ( ) no

*(consider 1 = no; 0 = yes)*

PCS: 5. Do you provide personal customer service? ( ) no    ( ) yes    If yes, use the scale below to mark the average number of appointments per week:

( ) 1 to 4    ( ) from 5 to 10    ( ) from 11 to 20    ( ) from 20 to 50    ( ) over 50

*(consider 0= no, 1= from 1 to 4, 2= from 5 to 10, 3= from 11 to 20, 4= from 20 to 50, 5= over 50)*

5.1 Do you provide electronic/digital customer service (telephone, Skype, Google Meet, etc.)? ( ) no    ( ) yes

If yes, use the scale below to mark the average number of attendances per week:

( ) from 1 to 4    ( ) from 5 to 10    ( ) from 11 to 20    ( ) from 20 to 50    ( ) over 50

*(consider 0= no; 1= from 1 to 4; 2= from 5 to 10; 3= from 11 to 20; 4= from 20 to 50; 5= over 50)*

5.2 Do you hold internal meetings at the office where you work? ( ) no ( ) yes

If yes, use the scale below to mark the average number of meetings per month:

( ) up to 2 ( ) from 3 to 5 ( ) from 6 to 8 ( ) from 9 to 12 ( ) over 12

*(consider 0= no; 1= up to 2; 2= from 3 to 5; 3= from 6 to 8; 4= from 9 to 12; 5= over 12)*

5.3 Do you perform legal hearings/oral arguments? ( ) no ( ) yes

If yes, use the scale below to mark the average number of hearings/oral arguments per month:

( ) up to 5 ( ) from 6 to 10 ( ) from 11 to 15 ( ) from 16 to 20 ( ) over 20

*(consider 0= no; 1= up to 5; 2= from 6 to 10; 3= from 11 to 15; 4= from 16 to 20; 5= over 20)*

5.4 Do you perform jury panels? ( ) no ( ) yes

If yes, use the scale below to mark the average number of plenaries per month:

( ) up to 5 ( ) from 6 to 10 ( ) from 11 to 15 ( ) from 16 to 20 ( ) over 20

*(consider 0= no; 1= up to 5; 2= from 6 to 10; 3= from 11 to 15; 4= from 16 to 20; 5= over 20)*

5.5 Do you frequent the forum (discuss the process with the clerk, etc.)? ( ) no ( ) yes

If yes, use the scale below to mark the average number of trips to the forum, for this purpose, per month:

( ) up to 2 ( ) from 3 to 5 ( ) from 6 to 8 ( ) from 9 to 12 ( ) over 12

*(consider 0= no; 1= up to 2; 2= from 3 to 5; 3= from 6 to 8; 4= from 9 to 12; 5= over 12)*

5.6. Do you participate in any legal institute where you have to use your voice? ( ) no ( ) yes

If yes, use the scale below to mark how many times a month you attend the institute(s):

( ) up to 5 ( ) from 6 to 10 ( ) from 11 to 15 ( ) from 16 to 20 ( ) over 20

*(consider 0= no; 1= up to 5; 2= from 6 to 10; 3= from 11 to 15; 4= from 16 to 20; 5= over 20)*

5.7 Are you part of any defense/administrative judgment body? ( ) no ( ) yes

If yes, use the scale below to mark the use of voice in the position you hold:

( ) very little ( ) little ( ) regular ( ) a lot ( ) excessive

*(consider 0= no; 1= very little; 2= little; 3=regular; 4= a lot; 5= excessive)*

5.8 Do you hold a position in the Bar Association in your country?

( ) no ( ) yes

If yes, describe the position: \_\_\_\_\_

Use the scale below to mark the use of your voice in the position you hold:

( ) very little ( ) little ( ) regular ( ) a lot ( ) excessive

*(consider 0= no; 1= very little; 2= little; 3=regular; 4= a lot; 5= excessive)*



5.9. Do you give a postgraduate course or any legal course in which you need to use your voice (presentation of seminars, boards, etc.)? ( ) no ( ) yes

If yes, use the scale below to mark the use of voice in the course you give:

( ) very little ( ) little ( ) regular ( ) a lot ( ) excessive

(consider 0= no; 1= very little; 2= little; 3=regular; 4= a lot; 5= excessive)

LWC: 6. Do you commonly give lectures/workshops/conferences? ( ) no ( ) yes

If yes, use the scale below to mark the average number of lectures/workshops/conferences per month:

( ) up to 10 ( ) from 11 to 20 ( ) over 20

(consider 0= no; 1= up to 10; 2= from 11 to 20; 3= over 20)

TCH: 7. Are you a teacher? ( ) no ( ) yes

7.1 Subject: \_\_\_\_\_

7.2 Average number of students:

( ) up to 10 ( ) from 11 to 15 ( ) from 16 to 20 ( ) from 21 to 29 ( ) over 30

(consider 0= no; 1= up to 10; 2= from 11 to 15; 3=from 16 to 20; 4= from 21 to 29; 5= over 30)

7.3 How many hours a week do you dedicate to teaching?

( ) up to 5h ( ) from 6 to 10h ( ) from 11 to 15h ( ) from 16 to 20h ( ) over 20h

(consider 0= on; 1= up to 5; 2= from 6 to 10; 3=from 11 to 15; 4= from 16 to 20; 5= above 20)

ENV: 8. Working environment conditions:

( ) noise (internal/external)

( ) dust

( ) air conditioning

( ) very big place

( ) very hot environment

( ) very cold environment

( ) irritating chemicals

( ) tight clothing in the throat/abdominal region

( ) other: \_\_\_\_\_

(consider 0 = no indication; 1 point each = very large location, very hot environment, very cold environment; 2 points each = indoor/outdoor noise, dust, air conditioning, irritating chemicals, tight clothing)

MIC: 9. Do you use a microphone or other vocal amplification resource? ( ) no ( ) yes

(consider 0 = yes; 1 = no)

ABS: 10. Have you ever been away from work because of your voice? ( ) no ( ) yes  
(consider **2** = yes; **0** = no)

SMO: 11. Regarding cigarette smoking, check: ( ) non-smoker or ex-smoker for 10 years or more  
( ) ex-smoker for less than 10 years  
( ) smoker  
(consider **0** = non-smoker or former smoker for 10 years or more; **1** = former smoker for less than 10 years; **2** = smoker)

ALC: 12. Do you drink alcohol? ( ) no ( ) yes  
(consider **0** = no; **1** = yes)

DRU: 13. Do or did you use drugs? ( ) no ( ) yes  
(consider **0** = no; **1** = yes)

DNT: 14. Do you wear dentures? ( ) no ( ) yes; describe type and for how long: \_\_\_\_\_  
\_\_\_\_\_  
Do you have any complaints regarding the use of these dentures? ( ) no ( ) yes; describe: \_\_\_\_\_  
\_\_\_\_\_  
(consider **0** = does not use and does not need; **1** = uses and has a complaint about use; **2** = needs to use, but does not use)

HRM: 15. **Only for women:**  
Do you have symptoms of premenstrual tension? ( ) no ( ) yes  
(consider: **0** = no, **1** = yes)  
Are you pregnant? ( ) no ( ) yes; if yes, time of pregnancy: \_\_\_\_\_  
(consider: **0** = no, **1** = yes)  
Are you in the menopause period? ( ) no ( ) yes; if yes, how long ago: \_\_\_\_\_  
(consider: **0** = no, **1** = yes)  
Do you have hormonal problems? ( ) no ( ) yes; if yes, describe: \_\_\_\_\_  
\_\_\_\_\_  
(consider: **0** = no, **1** = yes)

16. Would you like to add any information?  
\_\_\_\_\_  
\_\_\_\_\_

**Total score (sum of subscores):** \_\_\_\_\_ (Minimum score: 0 / Maximum score: 100)

**Instructions for the calculations:**

**. subscores:** each box on the left corresponds to a subscore; this must be calculated from the simple sum of the answers to all the questions in that thematic block; guidelines on the scoring of each question are in italics, in parentheses, just below the questions).

Subscores: VPD – questions related to the average time of voice use per day (maximum score = 7); WUC – vocal warm-up and cool-down (maximum score = 3); TRN – vocal training (maximum score = 1); PSC – personal customer service (maximum score = 50); LWC – lectures, workshops, conferences (maximum score = 3); TCH – works as a teacher (maximum score = 10); ENV – working environments conditions (maximum score = 13); MIC – microphone use (maximum score = 1); ABS – absent from work due to voice problems (maximum score = 2); SMO – smoke (maximum score = 2); ALC – alcohol (maximum score = 1); DRU – drugs (maximum score = 1); DNT – dentures (maximum score = 2); HRM – hormones (maximum score = 4). total score: is the simple sum of all subscores.