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Vocal risk in preachers: talkativeness, vocal loudness, and knowledge about vocal health and hygiene

Risco vocal em pastores: quantidade de fala, intensidade vocal e conhecimentos sobre saúde e higiene vocal

Keywords

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Descritores

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ABSTRACT

Purpose: The objective of this study was to investigate the knowledge of preachers about aspects of vocal health and hygiene and evaluate talkativeness and vocal loudness self-perceived during labor and extra-labor situations aiming to understand the possibility of vocal risk in these professionals. **Methods:** Fifty male preachers aged 22 to 73 years were evaluated. They responded to two self-assessment questionnaires on vocal health and hygiene and talkativeness and vocal loudness. The results were submitted to statistical analysis. **Results:** The preachers presented satisfactory scores in the Vocal Health and Hygiene Questionnaire; however, their scores in the Scale of Vocal Loudness and Talkativeness were lower in the labor situation compared with the extra-labor situations. The variables length of professional experience as a preacher and extra-labor talkativeness and vocal loudness were also associated with knowledge about vocal health and hygiene. **Conclusion:** Preachers show good knowledge about vocal health and hygiene but are at high risk of vocal disorders due to excessive use of talkativeness and vocal loudness in the work environment.

RESUMO

Objetivo: O objetivo do estudo foi investigar o conhecimento de pastores religiosos sobre aspectos de saúde e higiene vocal e avaliar a quantidade de fala e a intensidade da voz autorrelatadas, tanto nas atividades de uso laboral, quanto extralaboral, para se compreender a possibilidade de risco vocal nestes profissionais. **Método:** Foram avaliados 50 pastores, do gênero masculino, com idade entre 22 e 73 anos. Após o preenchimento do Termo de Consentimento Livre e Esclarecido, todos responderam a dois questionários de autoavaliação vocal, a saber: Questionário de Saúde e Higiene Vocal e Quantidade de Fala e Intensidade Vocal. Os resultados foram submetidos à análise estatística. **Resultados:** Os pastores apresentaram escores satisfatórios no Questionário de Saúde e Higiene Vocal, porém a quantidade de fala e a intensidade vocal mostraram-se elevadas na situação laboral, quando comparadas à extralaboral. As variáveis tempo de carreira pastoral, quantidade de fala e intensidade de voz extralaborais também estiveram associadas ao conhecimento sobre saúde e higiene vocal. **Conclusão:** Os pastores mostraram bom conhecimento sobre saúde e higiene vocal e podem ser considerados como uma população de elevado risco vocal devido ao uso de grande quantidade de fala e intensidade da voz no ambiente laboral.

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INTRODUCTION

The human voice is a powerful communication resource, and its quality can influence listeners positively or negatively. Thus, to persuade the interlocutor, some occupations demand a differentiated use of the voice in order to communicate with a specific audience, and its performance can be negatively influenced by loss of quality and vocal resistance^(1,2). This occurs with the so-called voice professionals, e.g., journalists, voice actors, preachers, telemarketers, etc.⁽¹⁻³⁾.

The specific scientific literature reports that preachers are voice professionals who present high occurrence of vocal disorders associated with poor information received about voice care⁽⁴⁾. Vocal demand in preachers is considerable, because they must present their sermons to the faithful clearly, noting that the acoustic environment and amplification are not always adequate⁽⁵⁾.

Furthermore, the high vocal demand observed in preachers may put them at risk of developing voice impairments, considering this risk as the possibility of individuals experiencing an undesired event that is influenced by external or innate factors⁽⁶⁾. Thus, vocal risk would be the possibility of developing a voice impairment due to environmental noise, smoking, pollution, air conditioning, vocal abuse, pneumophonic incoordination, hearing loss, etc.⁽⁷⁻⁹⁾.

Controlling external risk factors is not always an easy task, and it does not depend exclusively on the voice professional. Thus, it is more efficient to intervene in internal factors to reduce the risk of developing dysphonia, considering that the voice is the work tool of these individuals. Among the innate factors, vocal habits directly influence vocal risk, and the practice of healthy vocal habits is associated with maintenance of a good quality voice^(10,11).

A healthy vocal habit includes some practices that favor the maintenance of good vocal health and hygiene, such as adequate hydration, vocal warm-up exercises, use of amplification, avoidance of shouting, etc.⁽³⁾.

Recently, a questionnaire on vocal health and hygiene was developed and validated in Brazil, namely, the Vocal Health and Hygiene Questionnaire (VHHQ)⁽¹⁰⁾. This instrument evaluates the knowledge of individuals about the theme and presents cut-off values that make its applicability feasible, including in vocal screening, because it enables verification of the level of knowledge about vocal health and hygiene, in addition to the need for specific directions, guiding subsequent interventions⁽¹⁰⁾.

Talkativeness and vocal loudness are other risk factors internal to the individual that may negatively influence vocal quality and health. Talkativeness is defined as the amount of time a person makes use of speech throughout the day, whereas vocal loudness is described as the level of decibels used in speech production; however, it is not always possible and viable to perform such measurements objectively.

In order to measure these aspects subjectively, the questionnaire Self-rating Scale of Vocal Loudness and Talkativeness was developed⁽¹²⁾; this tool was adapted to Brazilian Portuguese even before the publication of its original version in English⁽¹³⁾,

and was chosen for this study because of its easy applicability and understanding.

Therefore, the purpose of the study is to investigate the knowledge of preachers about aspects of vocal health and hygiene and assess talkativeness and vocal loudness self-reported during labor and extra-labor situations aiming to understand the possibility of vocal risk in these professionals.

METHODS

This is a cross-sectional study conducted with a convenience sample composed of 50 male clergymen aged 22-73 years (mean age = 45.1 years). Inclusion criteria comprised pastors who were actively involved in the preaching function, recruited in fifteen renewal evangelical churches - also known as Pentecostal churches, in the metropolitan area of Belo Horizonte, Minas Gerais state, Brazil. Pastors who were not in their work environment during the time of this survey owing to leave or vacation were excluded. This study was approved by the Research Ethics Committee of the Centro Universitário Newton Paiva under protocol no. 1.810.933, CAAE: 60321716.1.0000.5097. All participants signed an Informed Consent Form (ICF) prior to study commencement. None of the invited pastors objected to participating in the research and all of them expressed satisfaction in doing so.

Of the 50 participating pastors, 33 (66%) had attended a theological seminary for development and improvement of the pastoral activity and the remaining 17 (34%) had not, presenting no training for the occupation. There was good sample distribution regarding the length of professional experience: 11 (22%) of the investigated preachers had ≤ 5 years of experience; 11 (22%), 6-10 years; 6 (12%), 11-15 years; 11 (22%), 16-20 years; 11 (22%), ≥ 21 years.

Each individual completed two self-assessment questionnaires on the voice, namely: the Vocal Health and Hygiene Questionnaire (VHHQ)⁽¹⁰⁾ and a version adapted to Brazilian Portuguese of the Self-rating Scale of Talkativeness and Vocal Loudness⁽¹³⁾.

The questionnaires were applied in the pastors' workplace during their work time. The first author of this study was present during application to explain any possible misunderstandings. Upon completion of the questionnaires, the participants received guidance about the items that were not marked correctly and could clarify doubts on voice care.

The VHHQ comprises 31 items and respondents should check whether the item is a positive, neutral or negative influence on the voice. One point is added for each correct answer and the total score is calculated by simple summation. The cut-off value is 23 points, which means that vocally healthy individuals tend to obtain scores ≥ 23 points⁽¹⁰⁾.

The Self-rating Scale of Talkativeness and Vocal Loudness measures these aspects subjectively, and respondents should indicate them on a growing scale from 1 to 7. The closer to seven the score, the greater the self-referenced vocal loudness and talkativeness⁽¹²⁾. Measurements were performed in the labor and extra-labor situations, similarly to the adaptation of the questionnaire to Brazilian Portuguese⁽¹³⁾. In a survey conducted

with 1831 economically active individuals aged 18-70 years, the mean scores for the male gender for talkativeness and vocal loudness were 4.6 and 4.4 in the extra-labor situation and 5.0 and 4.6 in the labor situation, respectively⁽¹⁴⁾.

Data were classified and submitted to statistical analysis using the SPSS V20, Minitab 16, and Excel Office 2010 software programs. A significance level of 5% (0.05) was adopted for all statistical analyses. The following statistical tests were applied: (a) Student's *t*-test, to compare the mean VHHQ scores between the preachers who attended and those who did not attend the theological seminary; (b) Paired Student's *t*-test, to compare talkativeness and vocal loudness in the labor and extra-labor situations; (c) Pearson's correlation coefficient⁽¹⁵⁾, to verify the association between the VHHQ scores and the variables age, length of professional experience, and talkativeness and vocal loudness in the labor and extra-labor situations.

RESULTS

Tables 1 to 3 present the results obtained in this research.

The investigated pastors presented a mean score of 28 points in the Vocal Health and Hygiene Questionnaire (VHHQ), and only three (6%) of them had scores below the cut-off value (23 points). Table 1 shows that the theological seminary did not significantly influence the participants' scores. Results indicate that both talkativeness and vocal loudness were higher in the labor situation compared with those in the extra-labor situation (Table 2).

Table 3 presents the correlation between the VHHQ scores and the variables age, length of professional experience, talkativeness, and vocal loudness. Although significant association was observed, the strength of these correlations was weak.

Length of professional experience was associated with knowledge about vocal health and hygiene, considering that pastors who had been in the profession longer presented mean scores higher than those of pastors with shorter professional experience (Table 3).

Inverse correlation was verified between the total VHHQ score and talkativeness and vocal loudness in the extra-labor situation, that is, the higher the score, the lower the talkativeness and vocal loudness in this situation (Table 3).

Table 1. Total score in the Vocal Health and Hygiene Questionnaire (VHHQ) of preachers who attended and did not attend theological seminary

Seminary	n (preachers)	VHHQ total score		p-value
		Mean	Standard Deviation	
Yes	33	28.2	2.1	0.3
No	22	27.6	2.0	

Student's *t*-test

Table 2. Talkativeness and Vocal Loudness during labor and extra-labor activities

Questionnaire	Mean	Median	Standard Deviation	CV %	p-value
Talkativeness					
Labor	5.64	6	1.35	24	<0.001*
Extra-labor	3.68	4	1.58	43	
Vocal loudness					
Labor	4.98	5	1.25	25	<0.001*
Extra-labor	3.78	4	1.15	30	

*Statistically significant; Paired Student's *t*-test

Caption: CV = coefficient of variation

Table 3. Correlation between the Vocal Health and Hygiene Questionnaire (VHHQ) scores and the variables age, length of professional experience, and labor and extra-labor talkativeness and vocal loudness

VHHQ correlation	Correlation (r)	p-value
Age	0.22	0.117
Length of professional experience	0.36	0.009*
Extra-labor talkativeness	-0.28	0.048*
Extra-labor vocal loudness	-0.35	0.014*
Labor talkativeness	-0.14	0.327
Labor vocal loudness	0.02	0.871

*Statistically significant

Caption: *r* = Pearson's correlation coefficient: >0.9 - very strong; 0.7-0.9 - strong; 0.5-0.7 - moderate; 0.3-0.5 - weak; <0.3 - negligible⁽¹⁵⁾

DISCUSSION

The pastoral occupation requires intense dedication, considering that the tasks to be developed are diverse: counseling, lectures, prayers, songs, home visits, among others. This profession is not always remunerated, and it perpetuates until senescence, with wide variation of age among practitioners, considering that there is no requirement of specific training for this occupation. Attention to the vocal health of this population is necessary in order to favor the maintenance of vocal quality and longevity, and a good quality voice facilitates communication and assigns credibility to the message, which is important in the religious environment of these professionals.

In this study, we chose to recruit a sample of pastors belonging to the Pentecostal movement, also known as renewal evangelical, because they adopt a more spontaneous and intense preaching style, with greater vocal demand. This choice enables more accurate analysis of the differences between vocal use in labor and extra-labor situations, which is the proposition of the present study.

Most of the participants presented scores higher than the cut-off value in the Vocal Health and Hygiene Questionnaire (VHHQ), that is, they demonstrated good knowledge about vocal health and hygiene (Table 1). The mean total score was 28 points, close to that reported in the literature for vocally healthy individuals - 29.12 points⁽¹⁰⁾. The ease of access to information coupled with the universalization provided by the Internet favor expansion of knowledge and enable the search for information that may assist with voice self-care. In addition, some of this information has been widely known for several generations, such as the benefits of good voice hydration and the harmful effects of screaming and smoking⁽¹⁶⁾. However, occurrence of high scores does not mean absence of vocal impairment, but indicates presence of knowledge about the basic vocal health and hygiene standards⁽¹⁰⁾.

Another factor that may have contributed to raising the pastors' scores in the VHHQ is the realization of the Voice Campaigns, which are national events, organized annually by the Brazilian Society of Speech-language Pathology, whose objective is to make the population aware of the importance of voice for the promotion of health and of the search for treatment when symptoms are persistent. The event is supported by the media and has wide coverage in the region where this survey was conducted.

Still on vocal knowledge, a study with 242 teachers⁽¹⁷⁾ demonstrated that the factors harmful to vocal well-being were practiced by this population even when they were aware of their effects, which may justify the fact that pastors, despite having good knowledge about vocal health and hygiene, are in the list of occupations that seek speech-language therapy with presence of vocal complaints, most frequently throat clearing followed by hoarseness and laryngeal pain/irritation^(18,19).

It is worth emphasizing that attention of pastors during their work activities can be directed to other aspects rather than vocal production, not valuing the abuses practiced, as shown in a study conducted with a sample of preachers who, even after watching the videos of sermons in which they practiced potentially

harmful vocal behaviors, did not identify these behaviors as detrimental to the voice⁽²⁰⁾, indicating the need for professional follow-up to guide and assist with the maintenance of vocal health, self-perception of harmful behavior, and promotion of vocal longevity.

It is believed that the curriculum offered in pastoral training does not contemplate issues related to voice care and application of knowledge in daily life, considering that having attended or not the theological seminary did not influence the VHHQ score.

The investigated pastors presented mean talkativeness value in the labor situation of 5.64 (Table 2), which is higher than the mean value reported in the literature for economically active men in the work environment - 5.0 points⁽¹⁴⁾, demonstrating the high demand of this professional category. However, when comparing the same individuals in the extra-labor situation, they presented a mean value (3.68 points) lower than that for economically active men - 4.6 points⁽¹⁴⁾, which suggests an attempt to save vocal use in situations of lower demand.

It is common knowledge that the use of greater talkativeness favors the development of vocal impairments, because speaking for a longer time can lead the phonatory musculature to fatigue and, consequently, increased effort to speak^(21,22). Moreover, it is known that greater talkativeness may trigger voice impairments resulting from phonotrauma caused by greater exposure of the tissue of the vocal folds⁽²³⁾. The literature also reports that a larger number of speakers are more likely to develop laryngeal lesions such as nodules, polyps, edemas, etc.^(12,18).

The intense vocal loudness observed in pastors in the labor situation (4.98 points) (Table 2) is also higher than the mean value reported in the literature for economically active male professionals (4.6 points)⁽¹⁴⁾. Similarly to the high talkativeness value, intense vocal loudness can act as an internal risk factor of vocal impairment, considering that to produce loud sounds it is necessary to recruit more respiratory muscles⁽²⁴⁾ and increase the subglottic pressure and glottic adduction⁽²⁵⁾. Increased subglottic pressure requires the vocal folds to increase the compression force between them, so that they remain mediated for voice production⁽²⁶⁾, which may lead to phonotrauma. Therefore, it is ideal that the spoken voice be produced at usual loudness, and that sound amplification resources, such as microphones, and favorable acoustic environment be available⁽²⁷⁾.

Similar results were observed in other categories of voice professionals such as teachers⁽¹⁷⁾ and teleservice operators⁽¹³⁾, who presented mean values of labor talkativeness of 5.25 and 5.73, respectively, and mean values of labor vocal loudness of 5.14 and 4.55, also respectively. These values are higher compared with those observed in the extra-labor situation, with mean values of talkativeness of 4.64 and 4.96 for teachers and teleservice operators, respectively, and mean values of vocal loudness of 4.61 and 4.43 for the same professionals, also respectively^(13,17).

Both prolonged talkativeness and intense vocal loudness favor the occurrence of phonotrauma^(7,23) and, consequently, may increase the risk of voice impairments, as these lesions compromise the vocal fold vibration cycles, altering the sound produced⁽⁷⁾.

According to this study, pastors with a longer pastoral career presented higher VHHQ scores, that is, greater knowledge about vocal health and hygiene (Table 3). Inversely proportional correlation was observed between the VHHQ scores and the variables talkativeness and vocal loudness in the extra-labor environment, that is, preachers who speak less and with reduced loudness in extra-labor situations present greater knowledge about vocal health and hygiene (Table 3). Nevertheless, despite the significant correlation between the total VHHQ score and the variable length of professional experience, as well as the variables talkativeness and vocal loudness, both in the extra-labor situation, the strength of these correlations is weak. Thus, these variables do not seem to be determinant in the scores obtained in the VHHQ. These data are in agreement with the literature, since the length of professional experience in teachers did not show any association with the vocal well-being habits practiced⁽¹⁷⁾.

Several self-assessment tools have been used in vocal screening; however, none of them should be used in isolation, considering that they are not perfect classifiers⁽²⁸⁾. The two protocols used in this survey are complementary because they contemplate different dimensions of voice use, namely, vocal knowledge and behavior, in an attempt to involve the individual in its integrality.

Based on this study, it can be stated that the good knowledge about vocal health and hygiene presented by the investigated clergymen plays the role of a risk reducer for the development of voice impairments, but this knowledge needs to be applied in their daily life because, in isolation, it does not guarantee vocal health. The high levels of talkativeness and vocal loudness used in the work environment indicate the difficulty of these individuals to apply their knowledge in everyday practice, and they should be more attentive to these aspects.

CONCLUSION

Pastors show good knowledge about vocal health and hygiene but are at high risk of vocal disorders due to excessive use of talkativeness and vocal loudness in the work environment.

We suggest that further detailed studies be conducted and that the institutions of pastoral training make actions of prevention, promotion and recovery of vocal health available through guidance on care, maintenance and longevity of vocal health performed by trained professionals, in addition to motivating the application of this knowledge in the daily practice of pastors.

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Author contributions

BPLL: study design, analysis and interpretation of data, and writing of the manuscript; *GMVM*: critical revision and approval of the final version of the manuscript; *FARB* and *MSB*: critical revision of the manuscript.