

ORIGINAL ARTICLE

Speech therapy strategies to promote the vocal health of teachers: integrative literature review

Estratégias fonoaudiológicas para promoção da saúde vocal do professor: revisão integrativa da literatura

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KEYWORDS

Dysphonia
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ABSTRACT

Objective: To identify the speech therapy strategies used to promote vocal health to teachers of early childhood, elementary and high school, participating in programs/actions for prevention and promotion of vocal health, as well as to describe and analyze their effects through an integrative literature review.

Methods: An integrative review was conducted, which consisted of searches in the Lilacs, SciELO, and Medline databases. Inclusion criteria were complete articles available online in any language and year of publication that addressed strategies for promoting vocal health and preventing disorders in the target population, used in vocal health programs/actions with teachers.

Results: Of the 624 articles that were included, six were selected to compose the study. It was possible to verify that the most used resources were educational strategies, through programs of guidance and attention to the teacher's vocal health. The results of the interventions were analyzed using self-assessment questionnaires, some of which have been standardized, with validation and adaptation to Brazilian Portuguese. Among practical strategies, exercises involving semi-occluded vocal tract, breathing, relaxation, resistance, and vocal projection, as well as vocal warm-up and cool-down, were the most used.

Conclusions: Vocal health programs present diversified strategies, such as time and results analysis. The accurate study allowed to verify that the programs are effective and allow better vocal performance to the teacher, notably, through direct and indirect strategies.

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PALAVRAS-CHAVE

Disfonia
Professores escolares
Treinamento da voz

RESUMO

Objetivo: Identificar as estratégias fonoaudiológicas utilizadas para promoção da saúde vocal aos professores do ensino infantil, fundamental e médio participantes de programas/ações de prevenção e promoção à saúde vocal, bem como descrever e analisar seus efeitos, por meio de uma revisão integrativa da literatura.

Métodos: Foi realizada uma revisão integrativa que consistiu em buscas nas bases de dados Lilacs, SciELO e Medline. Os critérios de inclusão foram: artigos completos disponíveis online em qualquer idioma e ano de publicação que abordassem estratégias para promoção da saúde vocal e prevenção aos distúrbios na população-alvo, empregadas em programas/ações de saúde vocal com professores.

Resultados: Dos 624 artigos que foram incluídos, seis foram selecionados para compor o estudo. Foi possível verificar que os recursos mais utilizados foram estratégias educativas, por meio de programas de orientação e atenção à saúde vocal do professor. Os resultados das intervenções foram analisados com a utilização de questionários de auto avaliação, sendo alguns já padronizados, com validação e adaptação para o português brasileiro. Entre as estratégias práticas, os exercícios que envolvem trato vocal semiocluído, respiração, relaxamento, resistência e projeção vocal, bem como a realização de aquecimento e desaquecimento vocal, foram os mais utilizados.

Conclusões: Os programas de saúde vocal apresentam estratégias bem diversificadas, tal como o tempo e análise dos resultados. O estudo acurado permitiu constatar que os programas são eficazes e permitem uma melhor performance vocal ao professor, notadamente, por meios de estratégias diretas e indiretas.

INTRODUCTION

Teaching has been considered one of the activities that most generate vocal problems, showing the need for care regarding these professionals' vocal health. Teachers have a higher prevalence of vocal disorders than non-teachers (11.6% versus 7.5%, respectively)¹. In a study conducted with 317 elementary and high school teachers, about 81% of the participants had dysphonia².

Considered an essential resource in the dialogical teacher-student relationship, the voice, when altered, can have direct consequences on communication in the classroom³⁻⁵. Preventive measures, such as actions to promote vocal health and well-being, are essential to promote changes in teachers' vocal behavior and attenuate damage to vocal health, thus favoring clarity, longevity, and better performance of his voice in the classroom, curbing absence from work activities⁶⁻⁹.

The results of actions to promote educators' vocal health, after theoretical-practical training⁹, point to reducing undesirable vocal symptoms, providing better perceptual awareness of voice quality and, due to this bias, changes in vocal behavior by learning the techniques acquired in their daily activities⁴. Such results highlight the importance of programs involving teachers' vocal education, although there is a need for more improved knowledge of strategic actions and their undoubted effectiveness, aiming at the polished excellence of programs/actions for teachers from kindergarten to high school¹⁰.

Other studies^{11,12} compared the effect of direct and indirect vocal therapy on the voice. The current study expands the discussion by describing the results of these interventions used in programs/actions to promote the teacher's vocal health who works in early childhood, elementary and high school. Understanding and analyzing the effects of these interventions and how their results are measured allows for a better selection

of strategies by speech therapists with evidence of their effectiveness. Thus, social relevance is highlighted with a return to the target population, minimizing the vocal suffering of these professionals, who have their voices as a work tool, allowing them to perform their work activity with a maximum vocal efficiency.

Given the above, this study aimed to identify the speech therapy strategies used to promote vocal health to teachers of early childhood, elementary and high school participating in programs/actions for prevention and promotion of vocal health and to describe and analyze their effects, through an integrative literature review.

METHODS

The following guiding question was raised to conduct the study: what are the speech therapy strategies used to promote vocal health in early kindergarten, elementary, and high school teachers and their effectiveness within the teachers' vocal health programs/actions?

Searches were performed in the electronic databases Lilacs (via BVS), SciELO, and Medline (via PubMed) in addition to manual search within the references of the pre-selected articles themselves. The controlled descriptors (DeCS) used were "disfonia", "distúrbios da fonação", "docentes", "educador", "professor", "fonoterapia", "treinamento da voz", in Portuguese and their English counterparts (MeSH): "dysphonia", "voice disease", "school teachers", "vocal training" and "speech therapy". The Boolean operators AND and OR were used to cross the descriptors as in the model with MeSH for Medline via PubMed: (((("Dysphonia"[Mesh]) OR ("Voice Disorders"[Mesh])) AND ("School Teachers"[Mesh])) AND ("Speech Therapy"[Mesh]) OR ("Voice Training"[Mesh])))).

The literature review occurred between

November 2018 and April 2019, with the search updated in August 2019. From the electronic search, 624 available articles were included in this study. At the end of the research process of screening and selection, six articles were selected.

Inclusion criteria consisted of complete articles available online in any language and year of publication, which presented strategies for promoting vocal health and preventing disorders in the target population employed in vocal health programs/actions with elementary school teachers and high school. Abstracts of scientific events, case reports, and experiences, narrative review studies, systematic and integrative were excluded; theses and dissertations, in addition to those that presented strategies for collective work, but unrelated to programs or actions to promote the teachers' vocal health.

The studies' selection was performed by two authors, who independently read all the titles and abstracts of the identified studies through electronic search. Disagreeing cases were analyzed by a third reviewer who issued a final opinion. The selected articles were read in full by two authors, who also extracted the data independently, using a data extraction form prepared for this integrative review. Disagreement cases were once again discussed with a third reviewer who arbitrated on the case.

A summary table was constructed with the selected studies to present the results considering the following aspects: the type of study, place/country where it was developed, aim, strategies used in the

intervention, the form of evaluation of the intervention results, the main results, and conclusion. The studies were presented in chronological order of publication. A critical analysis was sought at this stage, explaining the conflicting factors between the different studies. The synthesis of the studies was assessed descriptively.

RESULTS

The electronic search resulted in 624 publications. After excluding duplicates, 615 studies remained, of which 15 were read in full, resulting in six studies included. The description of the results regarding article retrieval, selection, and inclusion of studies, is detailed in a flow diagram¹³ format, corresponding to Figure 1.

Table 1 presents the main characteristics of the included studies and the description of the interventions, evaluation of the outcomes, and conclusions of the authors. The six included studies totaled 189 teachers. The participants' mean age ranged from 31.5 ± 3.1 years to 39.4 ± 9 years. One study¹⁴ presented the age group between 25 and 52 years, not providing data on the average age. The profession time was informed by only three studies, comprising an average of approximately 12 years among the subjects who underwent intervention. The weekly workload was not described in half of the studies; in the other half, the average was 5.5 to 28.6 hours per week.

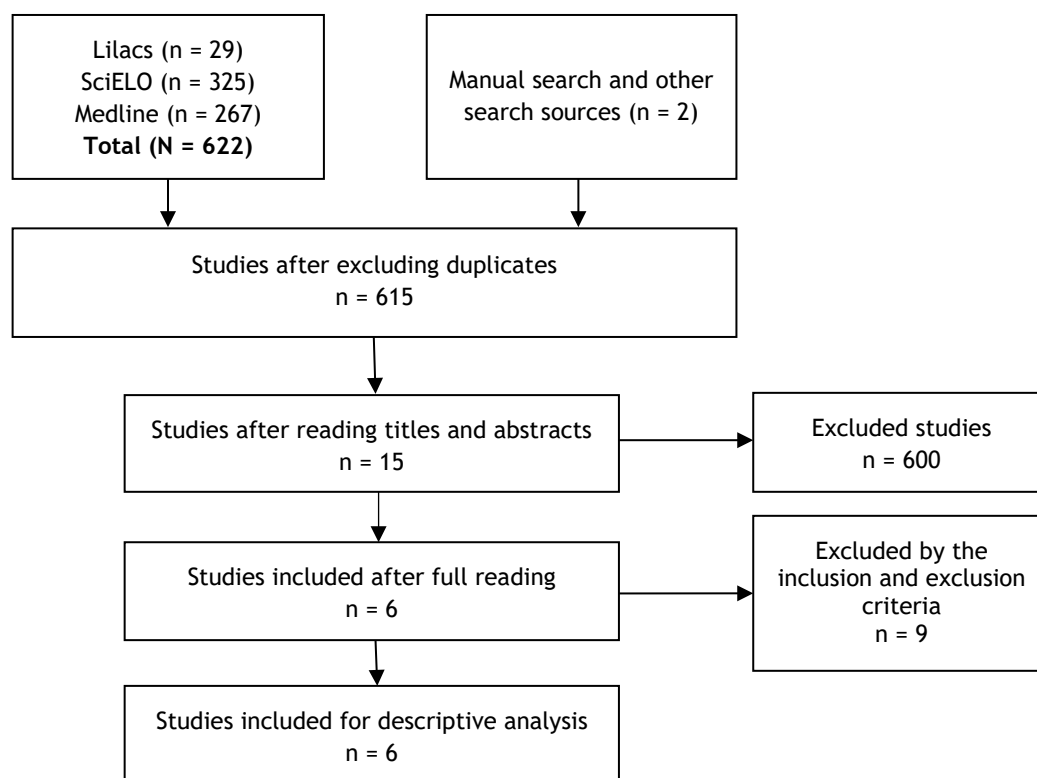


Figure 1 – Flow diagram of identification and selection process of studies. Adapted from Liberati et al. (2009)¹³.

Table 1 – Characterization of the studies included in the review and description of the interventions, evaluation of the outcomes and conclusions of the authors of each study.

Author (year)	Type*/ Place †	Sample	Objective	Type of intervention	Evaluation of outcomes	Conclusion
Chan (1994) ¹⁸	- Experimental study - Hong Kong	- N [‡] = 25 - Age: GI [§] (n = 12) - MD [¶] = 31,5 ± 3,1 years; GC// (n = 13) - MD [¶] = 34,2 ± 5,1 years. - Female - Profession time: GI [§] = 10,9 ± 2,5 years; GC// = 12,1 ± 3,4 years - CH [#] week: 5,5 h/day - School type: SI** - Vocal condition: without alteration	"To verify the effectiveness of a voice education program for teachers of early childhood education."	Experimental study - control group (CG) and intervention group (IG). GI - They were submitted to a vocal education program addressing vocal abuse and vocal hygiene and tried to practice for two months. The workshop was held in 1h30min. CG - They did not receive any intervention.	Perceptual-auditory and acoustic vocal assessment.	Significant results showing that the subjects can use specific strategies to maintain their voice in the classroom, promoting order and reducing vocal use when teaching.
Bovo; Galceran; Petrucelli; Hatzopoulos (2007) ¹⁹	- Randomized clinical trial - United States	- N [‡] = 64 - Age: GI [§] - MD [¶] = 39,4 ± 9 years; GC// - MD [¶] = 38,5 ± 8,5 years. - Female - Profession time: SI** - CH [#] week: SI** - School type: SI** - Vocal condition: SI**	Assess the effectiveness of a preventive voice program for teachers	Distribution in two groups - Control group (CG) and Intervention group (IG). IG - Subject to theoretical and practical activities, involving subjects such as anatomy and physiology of the phonatory system, phonation physiology, etiological factors and which contribute to the maintenance of dysphonia, vocal education, use of medication and voice, vocal fold injuries. The practical part included exercises aimed at posture, relaxation, breathing, vocal resonance and projection, CPFA and vocal attack. CG - No strategy.	Voice Handicap Index (VHI) questionnaire and questionnaire about the results of the intervention and acoustic evaluation of the voice.	Improvements in the degree of dysphonia, as well as in the parameters jitter, shimmer and MPT.

Table 1 – Characterization of the studies included in the review and description of the interventions, evaluation of the outcomes and conclusions of the authors of each study (cont).

Author (year)	Type*/Place †	Sample	Objective	Type of intervention	Evaluation of outcomes	Conclusion
Silverio; Gonçalves; Penteado; Vieira; Libardi (2008) ¹⁴	- SI - Piracicaba/SP	- N [‡] = 42 - Age: 25 a 52 years. - Sexo: feminino - Profession time: SI** - CH# week: SI** - School type: State school - Vocal condition: with and without alteration	"[...] analyze the complaints, laryngeal symptoms, habits related to vocal performance and the type of voice of teachers at a public school before and after participating in voice experience groups"	Intervention performed in three stages: 1st - Interviews, auditory-perceptual analysis and laryngological evaluation; 2nd - voice experience groups; 3rd - vocal analysis after the experience. There were 12 meetings lasting one hour each.	Performed through perceptual-auditory evaluation of the voice, using the GRBASI scale.	"There was an improvement in voice care and understanding of intervening factors and determinants of vocal changes, present in the conditions and organization of teaching work. The voice experience groups are important spaces for reflection and changing the relationship between work and the teachers health".
Simões-Zenari; Latorre (2008) ¹⁵	- Experimental study - São Paulo/SP	- N [‡] = 26 - Age: MD [¶] = 32,9 ± 7,5 years; - Female - Profession time: SI** - CH# week: SI** - School type: Municipal - Vocal condition: with and without alteration	"[...] to evaluate changes in behaviors considered negative for the professional use of the voice of nursery school teachers throughout a theoretical-practical speech-language intervention program aimed at the proper use of the voice."	Five meetings - 4 h the initial and 4 monthly follow-up meetings with 2 h each, total 12 h. Theory: communication processes, voice production, vocal psychodynamics, concept of normal voice, adapted and altered, vocal resistance and plasticity, non-verbal communication, body and voice, importance of listening, main vocal disorders that affect teachers, vocal possibilities/individual limits, concept of vocal well-being, main positive and negative factors for the teachers voice, importance of physical space in the proper use of the voice. Practice favoring techniques for vocal projection, resonance, breathing, articulation of speech sounds, vocal resistance, vocal fold vibration and cervical stretching.	Performed by registering in a specific protocol designed for the research.	There was a gradual decrease in the use of voice outside work, in speaking very low or high and in overeating before bed. There was an increase in the occurrence of cough in the third application of the protocol. As for the general monthly averages, there were no statistically significant differences when comparing the four applications.

Table 1 – Characterization of the studies included in the review and description of the interventions, evaluation of the outcomes and conclusions of the authors of each study (cont).

Author (year)	Type*/ Place †	Sample	Objective	Type of intervention	Evaluation of outcomes	Conclusion
Luchesi; Mourão; Kitamura (2010) ¹⁶	- Quantitative-qualitative. - Campinas/SP	- N [‡] = 05 - Age: MD [¶] = 37,5 ± 8,7 anos; - female - Profession time: 11,9 ± 6,9 anos; - CH [#] week: 28,6 ± 8,4 h/sem; - School type: State school - Vocal condition: with and without alteration	“[...] to analyze possible actions for the prevention and promotion of teachers vocal health through the analysis of interactions between vocal, occupational and preventive aspects.”	Two groups, of 6 and 7 subjects. 12 weekly meetings of 1h30 min. Items covered were notions of phonatory anatomy and physiology, vocal health (habits and care), breathing, pneumophonoarticulatory coordination, phonatory tension, articulation, speech speed and modulation, resonance, vocal projection, verbal and non-verbal expressiveness, vocal warm-up and cooling. Each meeting covered one to two items. The items were developed in expository classes, using audio-visual resources, oral Presentation and dialogue between participants, group dynamics and application of vocal techniques	No information	There was statistical significance in the association between the amount of vocal symptoms and participation in preventive-therapeutic intervention. There was also a trend towards an association between unavailability of time and reference to vocal stress.
Xavier; Santos; Silva (2013) ¹⁷	- Descriptive, with a quantitative and qualitative approach. - Recife/PE	- N [‡] = 27; - Age: MD [¶] = 35 years; DP ^{††} SI ^{**} ; - Female; - Profession time: MD [¶] = 10,4 years; DP ^{††} SI ^{**} ; - CH [#] week: 20h/sem ou mais; - School type: Municipal; - Vocal condition: with and without alteration	Present an action to promote the vocal health of teachers.	Six voice workshops were held, the same fortnightly and took place in the school itself at the end of school activities, with a combined time between the school board and teachers.	Self-administered questionnaires.	The workshops were evaluated as positive and important to raise awareness about the importance of the voice and motivation to care for it.

* = study design; † = city/country where the research was conducted; ‡ = number of subjects; § = Intervention Group; // = Control Group; ¶ = average; # = weekly workload; ** = no information; †† = standard deviation.

Four studies were conducted in Brazil¹⁴⁻¹⁷, one in China¹⁸ and another in the United States¹⁹. Among the studies conducted in Brazil, most were developed in the southeast of the country. According to the types of studies conducted, only the non-Brazilian were randomized clinical trials. As for the level of education, five studies were not explicit in identifying the sample, so it was impossible to specify the number of teachers that comprised the sample by levels – kindergarten, elementary and high school – or part of them. It is worth considering that the number of studies included is low.

DISCUSSION

All studies were conducted in municipal or state schools, and the teachers' vocal health programs presented theoretical and practical content. Among the objectives presented by the included studies, some sought to show the effectiveness of practices related to vocal health programs; others sought, beyond effectiveness, to analyze the professionals' adherence to the programs and satisfaction of participating in the entire circle.

The programs and actions aimed at the teacher's vocal well-being present theoretical and practical content as an intervention approach; mostly, the combination of both enhance vocal performance. As observed in the literature, the theoretical approach on vocal production and factors that can cause damage or contribute to the maintenance of vocal disorders is common, as clarifications and knowledge of the functionality of the vocal apparatus can make teachers to better understand the production of their voice and take more care for vocal well-being.

Research conducted with the aim of "analyzing the educational processes of the collective actions of the vocal health of the teacher described in the Brazilian speech therapy literature", through a literature review, highlighted that themes and contents such as vocal habits/behaviors and hygiene care/vocal health are present in about 71% of Brazilian publications, being the most prevalent theme²⁰.

In a research¹¹ that sought to compare the effectiveness between vocal guidance and the application of vocal techniques, respectively, indirect and direct vocal training, concluded that when the intervention is conducted combined (direct and indirect) results are more significant, regarding the parameters of vocal quality and voice self-assessment.

The studies included in this review present both approaches as an intervention process in their programs, which agrees with the literature. The study by Bovo et al.¹⁹ specifies, among the theoretical content, subjects such as vocal anatomy and physiology, etiological factors for dysphonia, medication use, and vocal fold injuries. The study by Simões-Zenari and Latorre¹⁵, in addition to the items covered by the study previously mentioned¹⁹, brings as theoretical content the concepts of normal, adapted and altered voice, vocal psychodynamics, vocal plasticity, non-verbal communication, body and voice, in addition to addressing the importance of listening and the use of physical space in an appropriate way to favor the voice, including the concept of vocal well-being.

Luchesi et al.¹⁶ also addressed phonation anatomy and physiology, as well as themes related to vocal health, involving habits and vocal care.

Thus, vocal health actions aimed at the teacher are considered essential practices for preventing vocal disorders since they assist and guide professionals on the use of voice in the workplace and provide understanding about voice care²¹.

The intensification of preventive actions is increasingly necessary and allows significant vocal behavior changes, favoring reflections and sensitization by teachers and managers and generating adaptations in the work environment¹⁴.

An important aspect in any process of caring for the teachers' vocal health, especially to assess the effects of an intervention, is to conduct an assessment at the beginning and end of actions aimed at this population. Silvério et al.¹⁴ highlighted each stage of their intervention, specifying as a first step the realization of a perceptual-auditory analysis interview, in addition to a laryngological assessment. Such a process allows a good knowledge of the participants' vocal condition at the beginning of the intervention and a good analysis of the effect of the experience at the end. The initial assessment process consists of the initial step in any speech therapy intervention process.

The auditory-perceptual evaluation of the voice is considered the gold standard in the vocal clinic and, in many cases, it is accompanied by an acoustic evaluation, considered an objective evaluation. In addition to these, vocal self-assessment protocols to verify the impact of a vocal alteration on teachers' daily lives are used as auxiliary instruments in the vocal assessment process.

The evaluations of the results of the studies interventions included in this review were performed using various instruments, such as protocols and scales of perceptual analysis of the voice (using the GRBASI scale), acoustic analysis and auditory self-perception protocol, questionnaires, group conversations, registration in a specific protocol, VHI questionnaire and vocal assessment. However, in one of the studies¹⁶, the instrument used to measure the effectiveness of the intervention was not presented.

The auditory-perceptual assessment was mentioned in two studies^{14,18} as the chosen instrument to assess the interventions' outcomes. Another study¹⁴ mentioned the use of acoustic evaluation and the Voice Handicap Index (VHI) questionnaire, indicated for assessing perception concerning the disadvantages that dysphonia can cause and serves as an instrument to monitor the effectiveness of treatment for vocal changes²². Simões-Zenari et al.¹⁵ and Xavier et al.¹⁷ used their own questionnaires, designed specifically for their research, without using existing validated instruments or protocols.

Assessments regarding the involvement of the voice in teaching activity and quality of life are important instruments for measuring the impact of the voice on the social, emotional, and personal aspects, which allows a better understanding of the impact of a vocal change on daily life subjects. Several studies call attention to look at the emotional aspects regarding vocal changes in teachers^{3,5,23}, which can compromise their work activities' performance.

In a study developed to evaluate vocal quality, self-assessment, and quality of life in elementary school teachers' voices, the authors concluded that vocal well-being programs could facilitate understanding the vocal problem. It can also awaken to a more improved self-assessment, making it possible to minimize the installation of a vocal disorder that leads to removing the teacher from the classroom³. The lack of knowledge about the own voice and the difficulty of perception can increase vocal impact²⁴.

As mentioned earlier, the approaches used in the prevention/promotion of teachers' vocal health programs should include theoretical and practical content. Among the practical contents addressed, the strategies involving relaxation, breathing, and vocal projection were highlighted^{15,16,18}.

According to research in the professional voice area, especially those related to the teachers' voice, it is highlighted that teachers need vocal projection and resistance to conduct their activities¹².

The practical contents consisted of postural exercises, relaxation exercises, breathing^{15,16,18}, vocal resonance and projection^{15,16,18}, speech articulation^{15,16}, speech modulation and speed¹⁶, vocal resistance¹⁵, vibration exercises¹⁵, cervical stretching¹⁵, verbal and non-verbal expressiveness¹⁶. Such sequence is considered crucial when planning work to promote vocal well-being, prevention, and vocal rehabilitation.

Relaxation, breathing, resonance, and vocal projection, mentioned as fundamental in work with teachers, promote the reduction of effort and relaxation of specific muscles involved with the phonation process, increased breathing capacity, in addition to resistance and voice projection.

The breathing in the vocal clinic is highlighted since this function is necessary to set the vocal folds in motion. However, when it comes to the teachers' voice, it is vital to work on the respiratory type and pneumophonoarticulatory coordination since upper or thoracic breathing promotes greater pharyngeal tension and insufficient air supply. This can cause tension in the cervical region and change the professional vocal performance, like in teachers⁸.

The work with resonance and vocal projection exercises allow a resonant and muscular balance, assist in glottal coaptation and promote the sensation of sound vibration on the face and vocal projection.

Besides these exercises, facilitating sounds, such as fricative sound techniques and vibrant sound techniques, favor a balanced vocal production. Exercises involving articulation of speech sounds are also essential to promote a more balanced vocal production, articulatory precision, and vocal projection. These exercises deserve to be highlighted as elected and described by the studies included in this review as strategies to integrate a program to promote and prevent the teachers' vocal health.

Orientations regarding vocal warm-up and cool-down programs are constant in the teachers' vocal health programs. Among the studies included, two^{15,16} mention these strategies specifically.

In the case of vocal warm-up and cool-down, research was conducted with the objective of "identifying and describing methodological parameters

and the effects of proposals for vocal warm-up and cool-down described in national and international literature". The authors concluded that such techniques allow a better vocal performance to the spoken voice professionals and that there is no agreement regarding the execution time and the exercises used²⁵.

The variables time of sessions, exercises used, and execution time are wildly divergent between studies in the voice area. The analysis of the included studies shows that the number of meetings and the time used in the interventions are variable, characterizing the heterogeneity in the intervention, with different methodologies, impacting the summary analysis to evidence the results.

In the study developed by Chan¹⁸, the intervention continued for two months, not specifying the number of meetings, with sessions of 1 hour and 30 minutes each meeting. In another study¹⁴, 12 meetings were held 1 hour each. In the study by Simões-Zenari and Latorre¹⁵, 12 hours of total intervention were also spent, divided into five meetings, where the first 4 hours were used, and the remaining four were 2 hours each. One study¹⁶ held 12 meetings with 1 hour and 30 minutes each, reporting that the participants had reduced vocal symptoms at the end of the intervention. In another study¹⁷, the authors reported having conducted six workshops with biweekly meetings but did not specify the time spent in each one.

Among studies that specified the time spent per meeting and the number of meetings, an average of 14 hours was used with the interventions, which can be considered favorable results with the theoretical and practical activities to promote the teacher's vocal health. One study¹⁶ reported a total time of 18 hours, with meetings of 1 hour and 30 minutes each, session time also used by another researcher¹⁸, but it was not possible to total the workshop time in the latter.

Educational programs for promoting teachers' vocal health are the most repeated. These are important for greater participation by teachers. Through these interventions, there is an increase in the knowledge of speech therapy strategies to reduce vocal impact, decreasing the present symptoms related to the voice^{9,26}.

Vocal hygiene, breathing exercises, warm-up, and vocal cooling are mentioned in the interventions as a form of important practical activities for the teacher since it will favor vocal health and prevent the appearance of changes and laryngeal diseases due to bad vocal use and abuse²⁷.

Thus, the strategies used in programs related to the teacher's vocal health are grouped into theoretical and practical intervention categories. As for the theoretical ones, the themes address subjects related to vocal physiology, etiological factors, vocal habits, breathing and voice, verbal and non-verbal expressiveness, vocal warm-up and cool-down. Among the practical approaches, straw phonation, strategies involving the semi-occluded vocal tract, breathing exercises, vocal projection, the articulation of speech sounds, vocal resistance, relaxation and CPFA, exercises that include strategies for warming up and working out and vocal cooling, are performed.

This study agrees to a similar one that concluded

that the best, regarding the prevention and treatment of the teachers' voice, is to combine theory with practice in intervention programs¹¹.

In the included studies, it was observed that the target audience still focuses on teachers of kindergarten and elementary education, with little or no participation of teachers from high school.

From the realization of this research, there is an undeniable need for more studies that, notably, bring more contributions about the topic at hand in the presentation of strategies to promote the vocal health of the teacher, setting the minimum time for effective application of the program, as well as strategies that allow for the effectiveness and adoption of instruments that enable the unsuspected evaluation of outcomes.

The presente work may have limitations due to the number of studies included. This fact is mainly due to the selection strategies adopted in this review, which may have excluded some other important studies.

CONCLUSION

This study allowed us to identify a diversity of

strategies used in vocal health programs/actions for teachers, besides heterogeneity in the number of sessions and variations in techniques, which resulted in improved vocal assessment scores at the end of the program. Some studies followed the teachers for a period after the program and found that satisfaction with the voice was maintained, showing a positive effect of the programs/actions. However, it would be essential to use objective instruments and subjective assessment or standardized protocols for measuring training results.

As for strategies, theoretical and practical approaches are part of the teachers' vocal health promotion program/actions with an emphasis on theoretical topics, such as anatomy and physiology of vocal production, vocal hygiene, and, for practical aspects, exercises involving the objectives of working relaxation, breathing, resonance, and vocal projection. Guidance on vocal warm-up and cool-down is also noteworthy. They are often present in programs and actions of guidance.

The results of the approaches presented and discussed here proved to be effective strategies for better vocal performance of teachers, who report vocal comfort and minimizing vocal effort during their work activities.

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