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Adherence and satisfaction of teachers participants of the Comprehensive Vocal Rehabilitation Program

Adesão e satisfação de professores participantes do Programa Integral de Reabilitação Vocal

Adherencia y satisfacción de maestros participantes del Programa Integral de Rehabilitación Vocal

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Abstract

Objective: to analyze adherence and satisfaction of teachers participating in a Comprehensive Vocal Rehabilitation Program - PIRV. **Methods:** study carried out with medical records of 31 teachers of the municipal schools of Belo Horizonte - MG, attending in a university extension project. Were analyzed the variables: age, sex, profession time, education cycle, work shifts, number of times the exercises

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BOS was responsible for data collection and analysis and the development of the manuscript;
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EVSS, SPS, BFMN and KR were responsible for the development of the text;
AMM was responsible for the overall direction of the stages of implementation and development of the project and manuscript.
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were performed at home, frequency of teacher's participation in the program and opinion/satisfaction about the PIRV. A descriptive analysis of the data and association measures between variables was made using Chi-Square Test or Fisher's Exact Test. **Results:** small number of lacks (0,37) was observed during the program execution period of the PIRV. The most given opinions by the participants were excellent (74,19%). None teacher trained at home the amount of training recommended (84 repetitions). 48.4% of the participants performed the exercises between 41 to 69 repetitions in total. There was no statistical significance in the analysis of association between the variables used in the study and the total number of exercises performed at home. **Conclusion:** the teachers presented good adherence to the PIRV regarding the presence in the sessions and difficulty in accomplish the exercises at home, according to the recommendation. As for the opinion of the participants, there was satisfaction with the program.

Keywords: Speech, Language and Hearing Sciences; Voice Disorders; Faculty; Occupational Health; Patient Satisfaction; Patient Compliance.

Resumo

Objetivo: analisar a adesão e a satisfação de professores participantes de um Programa Integral de Reabilitação Vocal – PIRV. **Método:** estudo realizado com prontuários de 31 professores da rede municipal de ensino de Belo Horizonte - MG, atendidos em um projeto de extensão universitária. Foram analisadas as variáveis: idade, sexo, tempo de profissão, ciclo de ensino, turnos de trabalho, número de vezes em que os exercícios foram realizados em casa, frequência de participação dos professores e opinião/satisfação sobre o PIRV. Foi realizada a análise descritiva dos dados e medidas de associação entre as variáveis utilizando o teste Qui-Quadrado de Pearson ou Exato de Fisher. **Resultados:** observou-se um número reduzido de média de faltas (0,37) durante o período de execução do PIRV. Quanto à opinião dada pelos participantes, a maioria foi excelente (74,19%). Nenhum professor executou em casa a quantidade de exercícios recomendados pelo treinamento (84 repetições). 48,4% dos participantes realizaram os exercícios entre 41 a 69 repetições no total. Não houve significância estatística na análise da associação entre as variáveis utilizadas no estudo e o número de exercícios realizados em casa. **Conclusão:** os professores apresentaram boa adesão ao PIRV quanto à presença nas sessões e dificuldade na realização dos exercícios em casa conforme a recomendação. Quanto à opinião dos participantes, observou-se satisfação em relação ao programa.

Palavras-chave: Fonoaudiologia; Distúrbios da Voz; Docentes; Saúde do Trabalhador; Satisfação do Paciente; Cooperação do Paciente.

Resumen

Objetivo: analizar la adherencia y satisfaccíon de los maestros participantes de un Programa Integral de Rehabilitacíon Vocal – PIRV. **Método:** estudio realizado con prontuarios de 31 maestros del sistema escolar municipal de enzeãnza de Belo Horizonte - MG, que asisten a un proyecto de extensión universitaria. Fueron analizadas las variables: edad, sexo, tiempo de ocupación, ciclo de enseñanza, turnos de trabajo, número de veces que se realizó los ejercicios en casa, frecuencia de participación de los maestros y opinión/satisfacción sobre el PIRV. Se realizó un análisis descriptivo de los datos y medidas de asociación entre las variables utilizando la prueba de Chi-Cuadrado de Pearson o Exacto de Fisher. **Resultado:** Fue comprobado que había un pequeño número promedio de fallos (0,37) durante el período de ejecución del PIRV. Sobre la opinión dada por los participantes, la mayoría fue excelente (74,19%). Ningún maestro entreno en casa la cantidad de exercicios recomendada (84 repeticiones). El 48,4% de los participantes realizo los ejercicios entre 41 a 69 repeticiones en total. No hubo significación estadística en el análisis de la asociación entre las variables utilizadas en el estudio y el número de ejercicios realizados en casa. **Conclusión:** los maestros mostraron una buena adherencia a PIRV en cuanto a la presencia en las sesiones y dificultad en la realización de los ejercicios en casa, de acuerdo con la recomendación. Cuanto a la opinión de los participantes, se obsevo satisfacción con el programa.

Palabras claves: Fonoaudiología; Trastornos de La Voz; Docentes; Salud Laboral; Satisfacción del Paciente; Cooperación del Paciente.

Introduction

The voice is the main tool of teachers since they depend on it for satisfactory transmission of the content, expression and communication[1]. This medium ensures their professional survival, allowing them to establish links with the student, the family and the community, promoting the process of teaching and learning[2].

Various daily requirements can cause intense voice use in the workplace, which associated with poor working conditions and lack of knowledge about vocal care, can bring harm to the individual, such as fatigue, strain, discomfort, cough, hoarseness, breathiness, changes in voice quality, pain and dry throat[1].Therefore, such changes can compromise the work of professionals using voice, being vocal rehabilitation considered the best form of treatment for behavioral dysphonia. In this approach we seek an improvement in vocal quality and raising greater awareness on these professionals, getting better vocal performance and understanding of the habits that may be harmful or not to the voice[3].

As with any other therapy, adherence is a key component to the success of vocal rehabilitation, especially when it comes to behavioral dysphonia, since it requires changes and/or elimination of abusive or harmful vocal behaviors to the voice[4]. Thus, the adhesion depicts the involvement of the patient to the therapeutic process, being influenced by a range of factors that may influence their behavior, their motivation and success in the treatment. Teachers with mild functional dysphonia may have greater difficulty adhering to treatment when the problem does not impact on their life quality, given the time constraint and other priorities restrictions that affect the decision of treating themselves. A previous study has shown that teachers struggle to recognize their voice problem and to seek for speech therapy help, given the difficulties experienced in the school routine when the illness is acknowledged[5].

As adherence, satisfaction is also a factor that influences the therapeutic process[6]. This concept is related to affective and behavioral aspects and to factors related to the competence of the therapist. It is, therefore, an essential component for treatment adherence[6].

An exercise program called Comprehensive Vocal Rehabilitation Program (*Programa Integral de Reabilitação Vocal* – PIRV)[3], was described in Brazil for treating behavioral dysphonia. It is believed that a program with pre-established sessions increases the chances of therapeutic relationship, motivation and patient compliance, by knowing in advance the stages of the work and the objectives to be achieved[3].

Considering the proposal of the program, this study aims to analyze the adhesion and the satisfaction of municipal teachers participating in a Comprehensive Vocal Rehabilitation Program, henceforth PIRV. It is believed that treatment through the program will improve the adherence and satisfaction of teachers with mild functional dysphonia.

Methods

This is an observational study of retrospective cross-sectional approved by the Research Ethics Committee of the institution under the CAAE 44359215.5.0000.5149 number. The research followed the rules of Resolution CNS 446/2011, of the National Health Council, being held with records of teachers from the municipal educational system of Belo Horizonte - MG.

Teachers were seen at the outreach program "Professional Voice Improvement" (Aperfeiçoamento da Voz Profissional). The university outreach program is defined as an "educational, cultural and scientific process that articulates Education and Research inseparably and enables the transforming relationship between University and Society"[7].

The extension project consisted of eight sessions, being the first one evaluation, the last one reevaluation and the other six consisted of vocal rehabilitation, performed in accordance with the proposal of PIRV[3]. The sessions were held weekly, for a period of 40 minutes each. To participate in the PIRV the teacher presented the current medical report of laryngeal examination beforehand. The appointments were made in groups composed of a maximum of three teachers in the Speech Therapy Clinic of the Hospital São Geraldo, part of the complex of the *Hospital das Clínicas*, of the Universidade Federal de Minas Gerais (HC-UFMG), an institution administered by the Brazilian Hospital Services (Ebserh). All teachers participants in the study underwent speech evaluation on the speech before and after the therapeutic process, consisting of perceptual analysis, acoustic analysis and

protocols of self-speech perception (Voice Handicap Index: 10 - IDV 10[8], Participation and Vocal Activities Profile[9] and URICA-VOICE scale[4]). This study is part of a larger project and cited protocols were not used for analysis in this article. The PIRV sessions were conducted by trained students and supervised by the therapist project coordinator. All teachers participating in this study signed the Informed Consent Form (ICF) and were informed about the PIRV duration.

The convenience sample included the participation of 31 teachers from the municipal education system of Belo Horizonte - MG in 2015, with a mild degree of functional dysphonia, being 29 of them female and two, male.

The inclusion criteria for the project were teachers of municipal educational system of Belo Horizonte- MG, of both sexes, with functional dysphonia and who were referred by the municipal occupational health sector.

Exclusion criteria were individuals with speech or language disorders, organic or organo-functional voice disorders, oncology post-surgical cases of laryngeal, psychogenic, psychiatric or spasmodic dysphonia, singing voice professionals and professionals with a history of diagnosis of neurological problems or recent acute laryngeal diagnosis.

Quantitative variables of interest for this study were age, time at the occupation, frequency of teachers' attendance and exercises. The time at the job was divided into three categories (up to five, from six to 15 years, 16-31 years old). The frequency of participation in the program was analyzed by means of the attendance list.

The number of repetitions of the vocal exercises performed at home, in between the weekly sessions, was considered the dependent variable and verified by a control table, given to the teachers at the end of each session. In the project, it was recommended that the home exercise should be done three times a day (total of 126 repetitions), although the PIRV recommends twice a day (total of 84 repetitions).

The performance of a greater number of repetitions per day was accompanied by the therapist who verified the presence of signs like, itchy throat, coughing, vocal fatigue, voice worsening after training, which may indicate a voice overload. The cutoff point for the variable dichotomy "performance of exercises at home" considered the average of the exercises carried out by the group (40.77 repetitions), which was coincidental to the fact that the teacher has done training at home once a day (42 replicates). The teacher who, in the whole, performed the exercises from 41 to 69 times was compared to the one who trained less than 41 times. No study participant reached the amount of exercise recommended by PIRV (84 repetitions). It should be noted that some teachers did not bring the control table every week, despite reporting having done the exercises at home. Thus, the data presented tend to underestimate the group's training reality.

The qualitative variables studied were: gender (male, female), teaching stage (one, two or more) and working shifts (one, two or more), opinion / satisfaction on the intervention performed *(Likert* scale with the following response options: excellent, good, very good, fair, poor), positive and negative aspects reported and otorhinolaryngological diagnosis.

The analysis of the positive and negative aspects of the program was organized according to semantic similarity of the answers. Thus, the perceptions of the participants in the research about their participation in the program were classified into six categories: *differential treatment, improved voice and vocal habits after the program, praising the professional, bad time, overall satisfaction regarding the treatment and possibility of vocal self-knowledge.*

The results of the otorhinolaryngological reports described in files were grouped into two categories: no alteration and presence of glottis gap.

The vocal techniques used by the teachers followed the recommendation of PIRV 3 and were trained and monitored by therapists in all sessions. In order to avoid any questions while implementing the techniques at home, a CD-ROM containing the recordings of daily exercise was given to all participants. The PIRV seeks to address behavioral dysphonia in a more eclectic way, associating body works, glottis source, resonance and pneumophonic coordination, combined with knowledge of voice care and communicative attitude[3]. A proposal of addressing the cases of mild dysphonia without laryngeal changes aimed to reduce treatment time of teachers seen at the school clinic, to prevent worsening of their vocal and laryngeal clinical picture, and to encourage university integration between research, teaching and society.

After analyzing the medical records, relevant information to the research was transferred to an

Excel worksheet for database construction. The mean and the standard deviation of the variables age and frequency of participation in the project were estimated. The categorized variables were described by the absolute and relative frequency.

The analysis of bivariate association between the independent variables: teaching stage, work shift, time at the job, otorhinolaryngological diagnosis and opinion of the participants about the program with the total number of exercises performed at home (dependent variable) was made through Chi-square or Fisher's exact test. All analyzes were performed using the *Statistical Package for Social Sciences (SPSS) Statistics Base,* version 19.

Results

In this research, the majority of participants were female (95%) and the mean age was 39.09 years (± 7.94).

Considering Table 2, 61.29% of teachers were working a single teaching stage and 77.41% were working two shifts or more, indicating a greater workload. Most reported a length of time of work from six to 12 years (38.70%) and the majority of the otorhinolaryngological diagnosis had normal laryngeal configuration (74.19%). As for the opinion reported by the participants on the PIRV, most were excellent (74.19%). Regarding the number of repetitions that the exercises were performed at home for six weeks, no teacher has reached the amount of training recommended by PIRV (84 repetitions). 48.4% of participants trained the exercise of 41-69 repetitions in total. The group mean for the performance of home exercise was 40.77repetitions (± 15.50). There was no statistically significance between the analysis of the association of variables used in the study and the total of exercises performed at home (41-69 repetitions compared to less than 41 repetitions).

There was an average of 0.37 (± 0.55) absences in the program, ranging from 0 to 2.

The opinion about the PIRV, classified into six categories, most reported by teachers was the compliment to the therapist (Figure 1).

Table 1. Frequency distribution and association between the explanatory variables and the total number of exercises performed by teachers.

Variables	Number of repetitions of the exercises at home			p-value
	Total Participants	41 to 69 repetitions	Less than 41 repetitions	
	N =31	n (%)	n (%)	
Teaching Stage				
One	19	5 (26,3)	14 (73,7)	0,303
Two or more	12	7 (58,3)	5 (41,7)	
Work shift				
One	7	4 (57,1)	3 (42,9)	0,461
Two or more	24	11 (45,8)	13 (54,2)	
Time at job (in years)				
Up to five	10	5 (50,0)	5 (50,0)	
Six to 15	12	8 (66,7)	4 (33,3)	0,561
16 to 31	9	3 (33,3)	6 (66,7)	
ENT diagnosis *				
No laryngeal disorders	23	9 (39,1)	14 (60,9)	0,090
Glottis gap	8	6 (75,0)	2 (25,0)	
Participant Opinion				
Excellent	23	11 (47,8)	12 (52,2)	0,618
Very Good and Good	8	4 (50,0)	4 (50,0)	
Reasonable and bad	0	0 (0,0)	0 (0,0)	

Chi-square test Pearson or Fisher's Exact Test
Label
ENT: Otorhinolaryngological

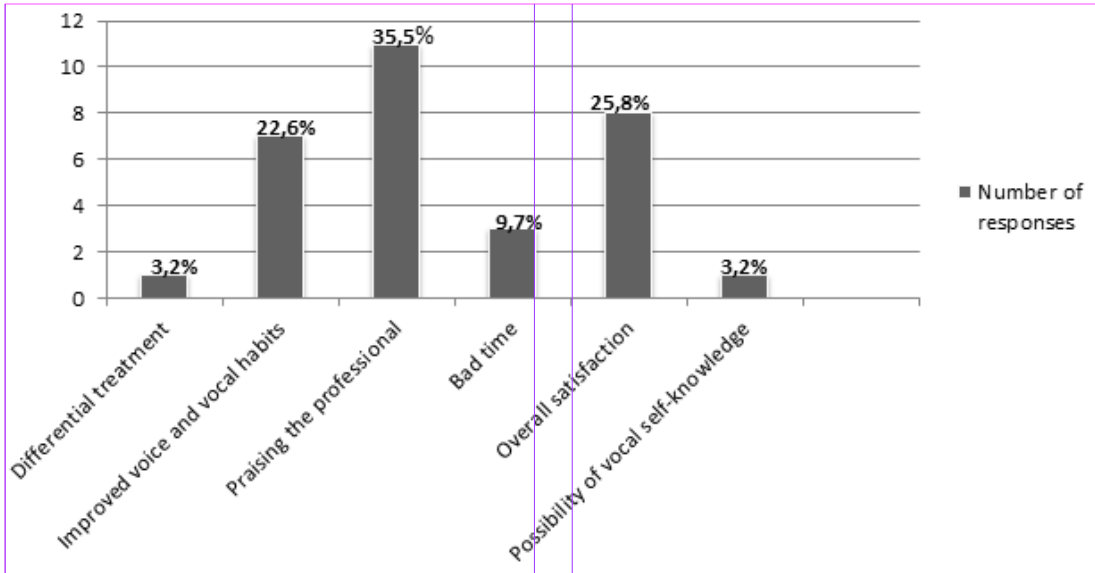

Figure 1. Absolute and relative frequency of participants' responses on the participation in the program.

Discussion

This retrospective analysis study of medical records, in order to investigate the adhesion and the satisfaction of municipal teachers participating in the PIRV showed good compliance of teachers for the attendance in the program, difficulty in performing the exercises at home as recommended, as well as satisfaction with the program.

The characteristics of the investigated teachers regarding sex and age corroborates studies showing the prevalence of voice disorders in women [10,11] and men in the forties [2,10,11,12].

The low adherence to long-term treatment is a problem that can reach about 50% of patients, and is considered a world problem[13]. A study shows that there is no direct correlation between adherence to speech therapy and the number of the scheduled absences sessions. However, it points out that the number of sessions is the strongest predictor for the completion of voice therapy[14]. The results of this study show a reduced number of absences during the PIRV. It was found that most of the teachers were teaching in two shifts or more, however, they showed good adherence to treatment, regularly attending the sessions. This fact may make it easier for professionals, from the vocal rehabilitation, to become more aware of the importance of the correct use of voice in order to avoid future vocal complications.

The small number of absences may have been influenced by the fact that treatment was recommended by the municipal occupational health sector, which after completion of rehabilitation received a statement confirming the participation of the teacher.

However, the benefit of vocal rehabilitation goes beyond attendance at therapy sessions. A study performed with a group of teachers showed that the use of PIRV for treating dysphonia proved effective, with positive results when compared to vocal assessment before and after treatment[15].

The results showed that teachers performed the exercises at home below recommendations. The labor demand can be an impediment to therapy adherence. Teaching classes in two shifts or more, according to research, requires more time of organization and dedication in order to prepare lessons, leading to dissatisfaction of teachers[16]. In addition, another study also found that lack of time is one of the biggest causes for non-adherence to speech therapy[17]. It is evident, however, that teachers, despite the extensive workload, demonstrated good adherence to the treatment in regard to their attendance in the program.

The fact that the PIRV presents a number of predefined sessions may have favored attendance at sessions. Literature indicates that pre-established programs favor patient compliance to treatment and enhances the therapeutic bond[3]. It is noteworthy that among the rules stablished for the implementation of the program, it was stated that the occurrence of two or more absences would result in the interruption of the teacher sessions, with the possibility of returning only in the next starting group. This decision was made due to the fact that the sessions occur in groups, making it difficult to replace missed sessions.

The outreach project proposed in this study has the characteristics of rehabilitation for functional dysphonia. The results showed that the majority of the teachers participating in the research have otorhinolaryngological diagnosis with normal laryngeal configuration and were referred for speech therapy. Such clinical condition could be a barrier to treatment adhesion. The treatment adherence, when referring to chronic diseases, tends to be taken well by the patient, since they have a great impact on the population[18]. In addition, studies have shown that the difficulties of the teacher to notice the symptoms express impediments with regard to self-care, since the vocal symptoms are perceived as sporadic and transient[19]. The participants of this study had mild change of voice quality.

All participants had a positive perception of the program. Studies reveal a close relationship between satisfaction and adherence in health interventions, being satisfaction regarded as a key factor for treatment adherence 20,21. The most reported category by teachers regarding the review of the program was to praise the professional. Literature shows that empathy between patient and therapist in health care can influence the therapeutic success and, mainly, adherence to therapy[22]. Teachers also pointed out that the PIRV improved voice and vocal habits, as well as allowing vocal self-knowledge. It is believed that teachers become aware of the preventive nature of the program and have committed to attend the sessions and change the harmful vocal behaviors. It is not possible to state the reasons that prevented teachers from carrying out the recommended number of times for the daily exercises. The fact that most teachers present mild dysphonia without disrupting daily life activities, can partially explain such an attitude. It was found that although the teachers have not done the exercises at home as recommended, they managed to notice the benefits through the adoption of healthier vocal habits and best vocal adjustment. The difficulty in measuring the number of times the exercises need to be performed per day to achieve a positive therapeutic outcome is highlighted.

Scientific evidence has proven the benefit of the combination of direct therapy, focused on vocal physiology, with indirect therapy, addressing the behavioral and environmental factors affecting the vocal health[23]. A review study on randomized clinical trials for the treatment of dysphonia has identified that various programs such as PIRV, the Vocal Function Exercise and the Lessac-Madsen resonance method obtained clinical improvement in patients with functional dysphonia with or without injury. The frequency, duration of therapy and exercises performed in the programs mentioned above differ, but all offer positive results for voice 23.

Despite the small number of participants, the study showed that the proposed intervention favored adherence and satisfaction of teachers. Interpretation of results should be careful, since all patients responded to the question regarding the opinion/satisfaction with the program they took part, in the presence of their therapist and many did not used the table control for the completion of the exercises at home. This study did not examine the effect of the program on the teacher voice quality, but it emphasizes their reports towards the improvement of the habits and vocal adjustments.

Therefore, this study draws attention to the importance of future studies in the influence of professional health surveillance in preventing cases of dysphonia and promoting teachers' vocal health in order to avoid the appearance of secondary vocal cord lesions resulting from inappropriate vocal behavior.

Conclusion

Municipal teachers with mild functional dysphonia without laryngeal lesion had good adhesion to PIRV regarding sessions attendances, but difficulty in performing the home exercises as recommended. As for the opinion of the participants, there was satisfaction with the program and report of improvement in behavior related to voice and vocal adjustments.

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