Enhancing Vocal Health in Coaches: A Target for Speech-Language Therapy

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Coaches, muscle tension dysphonia, prevention and rehabilitation, prevention and rehabilitation, vocal health, speeche-language therapist

Abstract

This study, inspired by Bonocore et al. (2012), investigated the prevalence and perception of muscle tension dysphonia among 21 coaches. An online questionnaire, including the Voice Handicap Index (VHI), assessed the impact of dysphonia on coaches' quality of life.

Results highlight the need to raise awareness among coaches regarding the importance of vocal health. Notably, 42.9% of participants recognized the value of a speech-language pathologist within sports teams. This suggests a crucial role for speech-language pathologists in preventing and treating vocal pathologies in coaches. Although promising, the limited sample size necessitates further research with larger cohorts. A more in-depth analysis could lead to the development of more effective prevention and rehabilitation programs, strengthening the role of speech-language pathologists in sports teams.

In conclusion, the findings underscore the importance of integrating speech-language pathologists into sports teams to improve coaches' quality of life and prevent vocal pathologies.

Introduction

The voice, as a fundamental tool of human communication, plays a crucial role in numerous professions. Despite the extensive scientific literature dedicated to vocal disorders in professional categories such as singers and teachers, the impact of intense voice use on athletes, and in particular on sports coaches, has been less thoroughly investigated.

This study aims to fill this knowledge gap by investigating the prevalence and impact of muscle tension dysphonia in a sample of sports coaches. Based on the pioneering work of Bonocore et al. (2012) [1], we hypothesize that the unique vocal demands of this professional category may predispose them to the development of functional vocal pathologies. The study was further supported by the use of standardized materials, such as the Voice Handicap Index (VHI) [2]. This questionnaire, initially proposed by Jacobson (1997) and subsequently validated in Italian by Schindler (2010), has proven to be a valuable tool in the assessment and management of dysphonia [2, 3, 4, 5]. Its validation in 2002 as the only instrument meeting psychometric reliability criteria reinforces its utility.

The specific objectives of the research are:

- To quantify the prevalence of muscle tension dysphonia in sports coaches;
- To evaluate the impact of dysphonia on the quality of life and professional performance of coaches;
- To raise awareness among the scientific community and practitioners about the importance of prevention and rehabilitation of vocal disorders in sports.

The results of this research could provide important insights for the development of specific prevention and treatment protocols for sports coaches, highlighting the crucial role of the speech-language pathologist in vocal health.

Materials and Methods

The present study necessitated the use of tools that would enable a specific investigation while simultaneously being characterized by rapid, simple, and easy administration, particularly for the sample to which data collection was directed. To achieve this, data was collected through the administration of an online questionnaire consisting of forty-four structured questions divided into three sections:

- Assessment: The Italian version of the Voice Handicap Index (VHI), a validated questionnaire that assesses the impact of dysphonia on quality of life, was used [2, 3, 4, 5].
- Vocal Habits: A section dedicated to the analysis of coaches' vocal habits was included, consisting of ten specific items.
- Sociodemographic Data: Basic demographic data was collected to characterize the sample.

The VHI [2, 3, 4, 5]was employed to understand the level of awareness of their vocal condition among the coaches in the sample.

The Voice Handicap Index (VHI) was administered to assess the coaches' self-perception of their vocal condition. The VHI consists of 30 items divided into three subscales:

– functional (F), evaluating the impact of the voice

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disorder on daily activities;
- physical (P), assessing self-perception of laryngeal discomfort, voice quality, and related difficulties;
- emotional (E), considering the emotional effects and affective response to the disorder.

VHI *"voice handicap index"* (da Jacobson e coll., modificato[18]) Data _____

Impatto delle problematiche vocali sulle normali attività quotidiane						
		mai	quasi mai	qualche volta	quasi sempre	sempre
1	Mi sentono con difficoltà a causa della mia voce					
2	Mi capiscono con difficoltà in un ambiente rumoroso					
3	Mi capiscono con difficoltà anche in ambiente silenzioso					
4	I membri della mia famiglia fanno fatica a sentirmi					
5	Telefono meno spesso di quanto vorrei					
6	Tendo ad evitare i gruppi numerosi per la mia voce					
7	Parlo poco con amici parenti etc. a causa della mia voce					
8	I miei problemi di voce limitano la mia vita sociale					
9	Mi sento escluso/a dalle conversazioni per la mia voce					
10	Se parlo a lungo mi gira la testa					
Punteggio: _____ *(punteggio massimo: 40)*		***0***	***1***	***2***	***3***	***4***
Impatto psicologico						
1	Sono teso/a quando parlo con gli altri per la mia voce					
2	La gente sembra irritata dalla mia voce					
3	Trovo che gli altri non comprendano il mio problema					
4	I miei problemi di voce mi innervosiscono					
5	Sono meno socievole a causa dei miei problemi di voce					
6	Mi sento handicappato a causa della mia voce					
7	Sono infastidito/a quando la gente mi chiede di ripetere					
8	Sono imbarazzato/a quando la gente mi chiede di ripetere					
9	A causa della mia voce mi sento incompetente					
10	Mi vergogno del mio problema di voce					
Punteggio: _____ *(punteggio massimo: 40)*		***0***	***1***	***2***	***3***	***4***
Percezione delle caratteristiche dell' emissione vocale						
1	Quando parlo rimango a corto di fiato					
2	La mia voce varia nel corso della giornata					
3	La voce mi sembra soffiata e flebile					
4	La voce mi sembra rauca					
5	Ho l'impressione di dover forzare per produrre la voce					
6	Mentre parlo la voce varia in modo imprevedibile					
7	Cerco di modificare la mia voce perché sia miglior					
8	Faccio molta fatica a parlare					
9	Alla sera la mia voce è più brutta					
10	Nel corso di una conversazione rimango senza voce					
Punteggio: _____ ***(punteggio massimo: 40)***		***0***	***1***	***2***	***3***	***4***

Il foniatra_____ La logopedista _____

Figure 1 - *Voice Handicap Index*

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The section of the questionnaire dedicated to 'Vocal Habits' was composed of ten ad hoc items. The aim of this section was twofold:

- investigating the usual vocal practices of coaches, with particular attention to the use of the voice in stressful vocal situations [6];
- assessing the subjective perception of the evolution of the voice over the course of the day, in order to identify any vocal usage patterns that could predispose to vocal misuse [7].

Al mattino la mia voce è:	• Normale • A volte mi sembra "graffiata" • Spesso la percepisco affaticata • Quasi sempre la avverto pesante e "graffiata"
Durante gli allenamenti oltre la voce usa altri supporti?	• Uso solo il fischietto (o altri supporti) • Uso spesso il fischietto (o altri supporti) e qualche volta la voce • Uso qualche volta il fischietto (o altri supporti) e spesso la voce • Non uso il fischietto (o altri supporti)
Quando urlo durante la partita/l'allenamento:	• Non sento alcun tipo di sforzo vocale • Alcune volte avverto una certa faticabilità • Spesso avverto fastidio alla voce • Mi sento particolarmente affaticato quando urlo
Alla fine dell'allenamento/della partita, come percepisce la propria voce?	• Normale, come a inizio giornata • Diversa ma comunque normale • Stanca, quasi graffiata • Graffiata • A volte sono completamente afono (senza voce)
Dopo l'allenamento/la partita ho la voce rauca:	• Mai • Quasi mai • Qualche volta • Spesso
Dopo aver sforzato la voce in campo durante la partita o l'allenamento:	• Non avverto mai fastidio alla gola • A volte avverto un leggero fastidio alla gola • Spesso percepisco la gola particolarmente affaticata • Sento un forte fastidio alla gola
Quante volte schiarisce la voce durante la giornata?	• Mai • Quasi mai • Qualche volta • Spesso
Sono solito fumare:	• Non sono fumatore • Poco (meno di 3 sigarette/giorno) • Non molto (meno di 6 sigarette/giorno) • Abbastanza (non più di 10 sigarette/giorno) • Molto (1 pacchetto al giorno)
A fine giornata a casa:	• Gli altri percepiscono a mia voce invariata • Capita che mi dicano di avvertire la mia voce diversa • Spesso gli altri percepiscono la mia voce diversa • Molto spesso gli altri mi dicono di avvertire la mia voce diversa
Potrebbe essere utile avere un logopedista nel proprio team di collaboratori?	• Non ne vedo l'utilità • Potrebbe essere utile, ma non sono interessato • Potrebbe essere utile, ma servono maggiori studi • Sarebbe utile per evitare problemi vocali di vario genere

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The project targeted a heterogeneous sample in terms of both age and gender: specifically, sixteen men and five women participated. Among them, only one subject was aged between eighteen and twenty, eight between twenty-one and twenty-nine, four between thirty and thirty-nine, four were in the forty to forty-nine age group, two were between fifty and fifty-nine, and finally, only two subjects were over sixty.

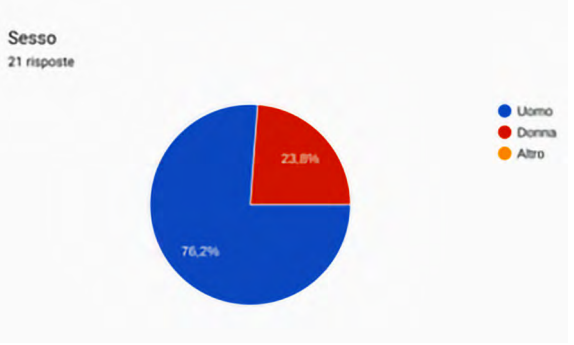

Figure 2 - *Gender distribution*

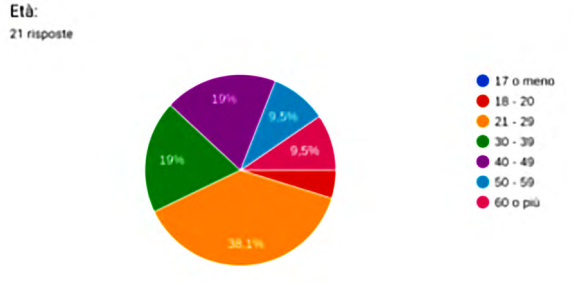

Figure 3 - *Age distribution*

Results and discussion

Administration of the Voice Handicap Index to the sample resulted in the collection of data for each of its three sections. Consequently, the collected responses, and the corresponding data analysis, can be divided into the same number of sections, followed by a section on vocal habits.

The impact of vocal impairments on everyday life: results of the study

Results from the first section of the questionnaire indicate that, overall, participants did not report significant limitations in daily activities due to their vocal conditions. In particular, social and family life did not appear to be significantly compromised, with 90.5% of participants denying any impact of their voice on family life. However, further analysis of the data revealed some interesting inconsistencies.

Forty-two point nine percent of participants reported never receiving negative comments about their voice, while 28.6% indicated receiving such comments sometimes. Notably, a non-negligible percentage (4.8%) reported experiencing difficulties in communication always. Similarly, 14.3% of participants indicated being understood with difficulty in noisy environments almost always, while 52.4% indicated being almost never in such a situation. This latter finding is particularly noteworthy, as vocal conditions in noisy environments can significantly worsen and increase the risk of developing vocal disorders. It is plausible to hypothesize that such conditions may represent a particularly high risk factor for voice professionals such as coaches who make intensive use of their voice in their work.

Psychological impact - data analysis

A seeming discrepancy emerged from the analysis of the psychological impact of dysphonia on coaches. While 85.7% of the sample denied that their voice negatively influenced their sociability, a non-negligible percentage (9.5%) reported nearly constant irritation related to the need to repeat phrases. This discrepancy suggests a need for further investigation into the underlying psychological mechanisms, as dysphonia may have a more significant impact on quality of life than is consciously perceived.

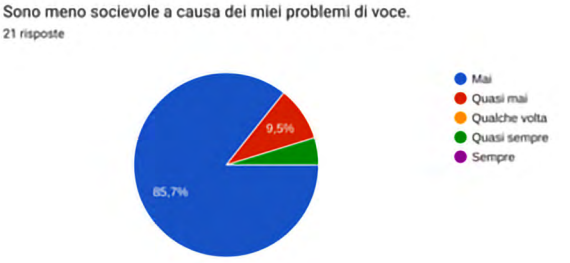

Figure 4 - *Social Impact Distribution*

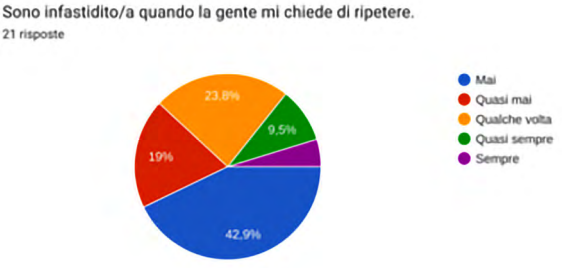

Figure 5 - *Distribution of annoyance levels according to repetition necessity*

Perception of voice emission characteristics - data analysis

Data analysis revealed a significant prevalence of certain vocal symptoms among coaches. Specifically, 28.6% of the sample reported frequently experiencing (at least sometimes) dyspnea and variations in voice quality throughout the day, suggesting a widespread sensitivity to alterations in their own voice.

Regarding hoarseness, although the majority (61.9%) never perceived it, 19% reported experiencing it occasionally. Interestingly, a small but significant percentage (4.8%) reported perceiving hoarseness almost always or always, indicating the presence of more severe cases.

Vocal fatigue was less frequent, with 81% of the sample denying ever experiencing it. However, 19%

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reported occasional perception. The subjective perception of "ugly" voice at the end of the workday was significant, with 19% of interviewees expressing this judgment. Such perception could indicate the presence of considerable vocal stress and suggests the need for further investigation.

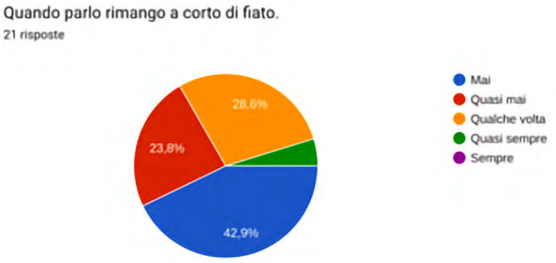

Figure 6 - *Distribuzion of vocal apnea*

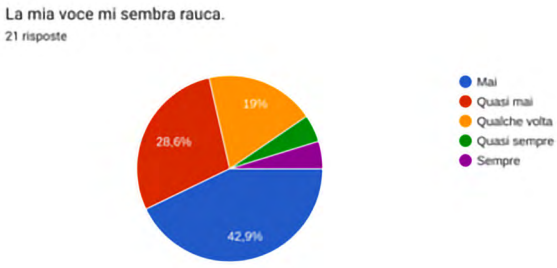

Figure 7 - *Vocal roughness distribution*

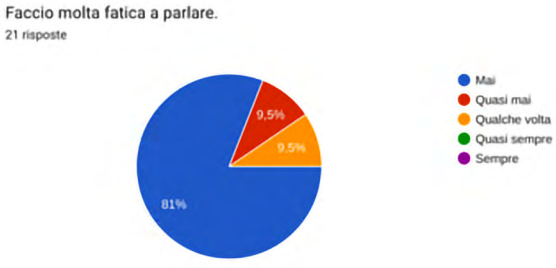

Figure 8 - *Vocal effort distribution*

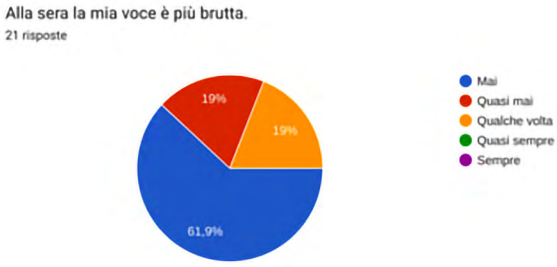

Figure 9 - *Distribution of vocal perception at night*

Vocal habits - data analysis

The study results highlight a significant impact of coaching activities on the vocal health of coaches [8]. A non-negligible percentage of subjects (9.5%) reported experiencing vocal symptoms upon waking, suggesting a condition of chronic vocal stress [7]. Additionally, the analysis of vocal habits revealed a limited use of vocal supports [9], with 47.6% of interviewees never or almost never using them. This data, coupled with the reported frequent vocal fatigue (14.3%), underscores the need for targeted interventions for the prevention and rehabilitation of vocal disorders in this professional category [10]. Sports activities appear to have a significant impact on the vocal health of coaches [11]. A notable percentage of coaches reported hoarseness (14.3%) and aphonia (4.8%) post-training, indicating vocal cord overload. Additionally, vocal habits such as frequent throat clearing (28.6%) contribute to worsening the condition. These results are particularly significant given that 66.7% of the sample reported being non-smokers, highlighting the need for targeted interventions for the prevention and rehabilitation of vocal disorders in this professional category.

The final part of the study explored coaches' perceptions of the usefulness of speech-language pathologists in sports. The results show a positive attitude, with 42.9% of respondents considering the presence of a speech-language pathologist on the team to be fundamental in preventing vocal problems. Moreover, 23.8% expressed interest in this professional figure, highlighting the need for further studies to delve deeper into the role of speech-language pathologists in sports. These data highlight a growing recognition of the importance of vocal health and open up new perspectives for the application of speech-language pathology in sports [12].

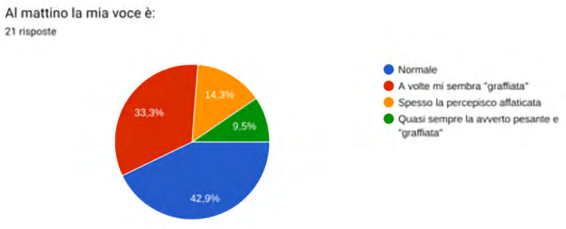

Figure 10 - *distribution of vocal perception at morning*

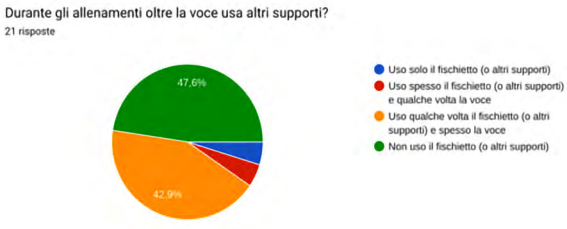

Figure 11 - *Use of vocal supports distribution*

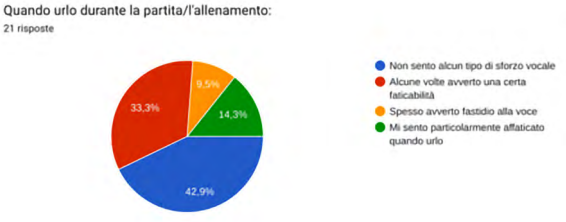

Figure 12 - *Vocal effort distribution during sport events*

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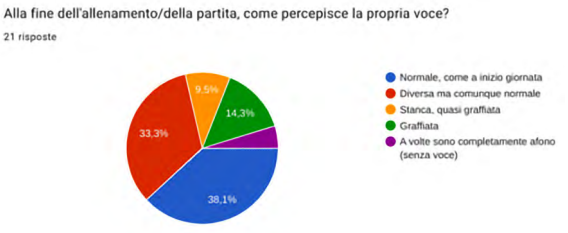

Figure 13 - *Vocal perception distribution at the end of sport events*

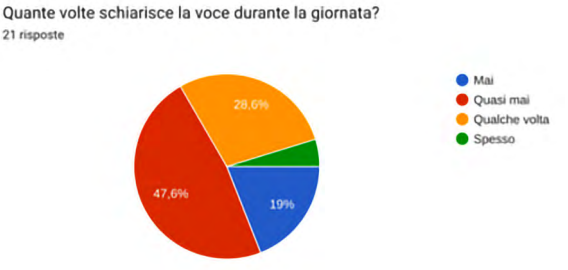

Figure 14 - *Raclage use distribution*

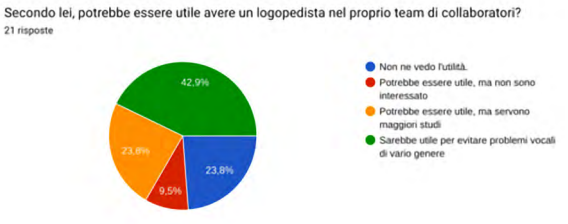

Figure 15 - *Percepition of a speech therapist utility in sport team*

Conclusions

Considering how engaging in sports reduces the likelihood of developing dysphonia [13, 14], it becomes evident that the world of sports is closely linked to vocal health and its care. Supporting this assertion, the results of this study emphasize the importance of vocal health, particularly among sports coaches [10, 11], highlighting the need for specific preventive and rehabilitative interventions. Although the study has limitations related to sample size and the restrictions imposed by the pandemic, the data obtained suggest a high awareness among coaches regarding the impact of dysphonia on their quality of life [7] and an openness towards the role of the speech therapist.

This research represents a first step towards a greater awareness of vocal problems in sports. The results obtained invite further investigation, involving larger samples and adopting more in-depth evaluation protocols.

In conclusion, the integration of the speech-language pathologist into sports teams presents a promising perspective for improving the vocal health of coaches and optimizing their performance. [10] Further studies will be essential to define specific prevention and treatment protocols, helping to strengthen the role of the speech-language pathologist in sports.

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