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Original Article

Artigo Original

Voice, stress, work and quality of life of soccer coaches and physical trainers

Voz, estresse, trabalho e qualidade de vida de técnicos e preparadores físicos de futebol

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Keywords

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ABSTRACT

Purposes: To assess aspects related to work, stress and quality of life related to voice in soccer coaches (C) and physical trainers (T), comparing the categories. **Methods:** Qualitative and quantitative studies with 13 C and 13 T of teams competing in Phase One of the highest level (*Série A*) of the 2012 *Campeonato Paulista* (São Paulo State Soccer Championship). The questions were open ended and related to complaints, difficulties, and/or problems regarding voice use during work and to the relations between voice, work, stress, and quality of life. Stress at work was analyzed by the Job Stress Scale (JSS) questionnaire. The perception of the impact of the voice on quality of life was evaluated by the Voice-Related Quality of Life (V-RQOL) protocol. The answers to the questions were transcribed and submitted to content analysis, and regarding the questionnaire, descriptive data and analytical statistics were used. **Results:** Content analysis showed lack of preparation for voice care; voice complaints; and intense vocal use demand under stressful work, in addition to the absence of healthy habits and social/family support. The JSS dimensions showed that the Active Work situation and the high V-RQOL scores are compatible with vocal health without complaints. There were no statistical differences between the categories. **Conclusion:** Both categories reported complaints/problems linked to professional voice use and stressful workload. However, the perception of vocal impact on the quality of life was positive, and the analysis of stress at work resulted in "good" and favorable conditions. The relationship between voice, work, stress, and quality of life in both the categories require further investigations.

Descritores

Voz
Fonoaudiologia
Saúde do Trabalhador
Futebol
Promoção da Saúde
Educação Física

RESUMO

Objetivos: Avaliar aspectos relacionados a estresse, trabalho e qualidade de vida em voz de técnicos (T) e preparadores físicos de futebol (P), comparando as categorias. **Métodos:** Estudo qualitativo e quantitativo com 13 T e 13 P de times da primeira fase do Campeonato Paulista de Futebol 2012/série A. Foram realizadas perguntas abertas referentes a queixas, dificuldades e/ou problemas no uso da voz no trabalho e também a relações entre voz, trabalho, estresse e qualidade de vida. O estresse no trabalho foi analisado pelo questionário JSS - *Job Stress Scale.* A percepção do impacto da voz na qualidade de vida foi avaliada pelo protocolo QVV (Qualidade de Vida em Voz). As respostas das perguntas foram transcritas e feita Análise de Conteúdo; nos dados dos questionários foi aplicada estatística descritiva e analítica. **Resultados:** A Análise de Conteúdo mostrou falta de preparo para cuidados com a voz; queixas vocais; intensa demanda de uso da voz sob trabalho estressante; mas também hábitos saudáveis e apoio social/familiar. As dimensões do JSS indicaram situação de Trabalho Ativo e os altos escores do QVV são compatíveis com vozes saudáveis e sem queixas. Não houve diferença estatística entre as categorias. **Conclusão:** Ambas as categorias referem queixas/problemas no uso da voz profissional e trabalho estressante; no entanto a percepção do impacto da voz na qualidade de vida foi positiva e a análise do estresse no trabalho resultou em condição "boa" e favorável. As relações entre voz, trabalho, estresse e qualidade de vida de ambas as categorias merecem maiores investigações.

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INTRODUCTION

The voice is an important working tool for soccer coaches and physical trainers. However, both categories face intense vocal use demands in contexts and situations that generate strong emotions, pressure, anxieties, and stress[1-3]. In addition, they experience environmental and organizational work conditions that can often jeopardize healthy vocal production and generate vocal complaints, signs and symptoms, and dysphonia[1-3].

The study of the relationship between voice, health, stress, work, and quality of life and soccer coaches and physical trainers is of interdisciplinary interest in the areas of Speech-Language Pathology and Audiology, Physical Education, Psychology, Sports Medicine, Occupational Health, among others.

Quality of life is a broad, subjective, and multidimensional concept, encompassing the subject's perceptions on the physical, functional, psychological, social, labor, and environmental aspects and in general health. It is an important parameter in the evaluation of health problems and practices, from the perspective of the subjects[4,5].

When it comes to understanding the effects of work on workers' health, it is worth noting that the environmental aspects and issues and the work organization (pressures, productivity demands, unrealistic expectations, tense, and precarious relationships, among others) generate overloads and intensify physical, cognitive, or affective strains that affect health and can promote physical or mental illness in workers[6-9].

The correlation between stress and vocal symptoms was proven in a study with teachers[10]. Speech disorder was also associated with stress at work, especially in teachers who were in a condition of high demand and high strain at work[8], the group poses a greater risk of physical and mental illness to the employee[11].

It is, however, noteworthy that stress and anxiety can be both primary and secondary to a voice problem, creating a vicious cycle between emotional and vocal symptoms[12]. The communicative behavior can change due to emotions and states of anxiety and stress, with effects on the body, facial expression, speech, and voice (resonant imbalance, alterations in modulation and articulation, and, above all, increased pitch), which undermine communication and voice-related quality of life (V-RQOL)[13,14].

A study sought to relate V-RQOL with the degree of dysphonia of voice professionals and nonvoice professionals and concluded that dysphonia affected the quality of life for all, regardless of their voice use[15].

An investigation of the working conditions and vocal health of soccer coaches and physical trainers (Ts)[16] showed that the voice is of fundamental importance in their professional activities, with roles and needs related to communicative efficiency and vocal psychodynamic, in their relationship with the players. It also evidenced the presence of inadequate habits, ignorance, and lack of information about voice care, in addition to unfavorable working conditions that constitute a risk to vocal health[16].

It is understood that research on the relationship between voice, work, stress, and quality of life can contribute to the knowledge of the real demands and needs of soccer coaches and physical trainers and to draw the attention of health professionals to the possibility of interdisciplinary actions focusing on health promotion for these sports professionals.

This study aimed to evaluate aspects related to stress, work, and V-RQOL in soccer coaches and Ts by comparing the results of both the categories.

METHODS

This is a descriptive, qualitative, and quantitative field study, approved by CEP UNIMEP under protocol no. 99/11 (12/13/2011).

A total of 13 physical trainers and 13 soccer coaches from the 20 soccer teams qualified for Phase One of the highest level (*Série A*) of the 2012 *Campeonato Paulista* (São Paulo State Soccer Championship) were included in this study.

The inclusion criterion was being the physical trainers and coach of the teams qualified for Phase One of the 2012 *Campeonato Paulista/Série A*, with no restrictions related to age and/or time of service and regardless of history of speech-language therapy, presence/absence of complaints, and vocal alterations and dysphonia. Exclusion criteria were refusal to participate and the impossibility of access/contact.

All subjects contacted gave their consent for participation.

The impossibility of access/contact occurred in some situations, due to reasons such as the lack of return on the part of the teams' press officers to the contact attempts made by the researcher; nonobtainment of authorization from the teams; the team was sequestered in preparation for a match (without the possibility of contact with third parties); and schedule conflicts (the team was competing simultaneously in other championships outside of São Paulo). Such situations excluded the participation of professionals from both the categories in seven teams.

Data collection took place between January and April 2012 and accessibility to the study subjects happened through procedures involving the following steps:

1. Initial contacts intermediated by the teams' press officers, to obtain prior authorization from coaches and physical trainers.
2. After obtaining prior authorization, the researcher scheduled visits to game sites or to the teams' training camps.
3. The researcher would travel to the cities where the game sites or training camps were located.
4. Meeting with the coach and the physical trainers for presentation of the study objectives, reading, and explanation of the Informed Consent and its subsequent signing, consenting to participation.
5. Collection of study data.

Data collection involved open questions and the application of written instruments/questionnaires [Job Stress Scale (JSS) and V-RQOL].

Data collection was carried out in a quiet room, at a time at the subject's discretion, generally close to the time of games or training sessions (2 games, 1 practice match, and 13 training sessions) — sometimes before and sometimes after them.

It is noteworthy that, in general, in other situations, access to the team was not allowed.

The subjects in both the categories collaborated promptly and answered to the questions and protocols individually, in an average period of 15 minutes.

The subjects answered to the following questions: "What are your complaints, difficulties and/or problems regarding the use of voice in your work?" and "What relationships do you perceive between your health conditions, work, stress, and quality of life?"

The answers to the questions were recorded with a SONY ICD-PX312 digital recorder and transcribed for Content Analysis — thematic analysis — based on the perspective proposed by Laurence Bardin [17].

In the Content Analysis, the analytical work was carried out as follows: preanalysis (the transcripts were read several times, allowing senses to sharpen and impressions and guidelines for analysis to form); exploration of the material (when significant passages were selected and representations, content, and core meanings were identified, which guided the selection of excerpts and aggregations of discursive episodes in organizing the material into thematic categories and sets); and the treatment of the results (inference/interpretation and relating with findings on the literature)[17].

To analyze stress in the work of soccer coaches and physical trainers, we used the abridged version adapted to Brazilian Portuguese of the instrument JSS[7].

The JSS evaluates the following dimensions: Demand, Control, and Support at work, referring to the sources of stress in the psychosocial work environment and the strain resulting from the interaction of these dimensions. The instrument has 17 questions classified in 3 dimensions, as follows:

1. Demand – refers to pressures of psychological nature (questions a through e);
2. Control – is the worker's ability to use their intellectual skills to carry out their work activities and having sufficient authority to make decisions on how to accomplish them (questions f through k);
3. Support – refers to the levels of existing social interaction at work, involving colleagues and different hierarchical levels (questions l through q).

The calculation of the scores for each dimension of the JSS is performed by the sum of the values for each individual score, as follows: Demand, 5–20 points (highest demand and worst situation); Control, 6–24 points (greatest control and best situation); and Support, 6–24 points (highest support and best situation).

The results of the mean scores and median of the JSS dimensions (Demand, Control, and Support) by professional category are presented in a table, together with the result of the statistical analysis comparing both categories.

In addition, the three dimensions of the JSS (Demand, Control, and Support) were analyzed in conjunction, based on Karasek's Demand-Control Model[18]. According to this model, the mean scores are allocated on a four-panel chart, in order to express the relationship between the dimensions Demand and Control relating to work and to allow the analysis of the results of these two dimensions, related to illness risks[7].

The results of the pooled analysis of the three dimensions of JSS are displayed in another chart and their interpretation is referenced by Karasek[18], as follows:

- "High Strain" is worst situation and more harmful to health, as great psychological demands coexist with low control over the work process[18];
- "Passive Work" is a harmful situation for health, because it combines low demand and low control and may cause loss of skills and lack of interest[18];
- "Active Work" represents a good situation, as high demands and high control coexist: the subject experiences possibilities for planning and developing strategies to deal with the difficulties[18];
- "Low Strain" is considered the ideal situation, as it combines low demand and high control of the work process[18].

It is also noteworthy that the lack of support can also result in negative health consequences.

To evaluate the perception of the impact of voice on quality of life, the V-RQOL questionnaire was used, a self-assessment tool developed to measure not only the relationship of voice with quality of life but also the impact of dysphonia in people's lives, with proven validity, reliability, and sensitivity[5,19-21].

The V-RQOL reveals the unique perception of those living with a voice problem and offers ample opportunity for application in investigations[5], as it is applicable for both studies that presupposes dysphonia, as for those who turn to vocal trials; or even for those who seek to understand the relation between voice and quality of life in general and at specific times, from the perspective certain individuals, groups and/or categories — as in the present study.

The V-RQOL relates quality of life and voice used from the Physical, Socioemotional, and Total domains (the latter summarizes the first two). The calculation of the domains is based on the following expressions:

1) Socioemotional =

$$100 - \frac{(Q.4 + Q.5 + Q.8 + Q.10 - 4)}{16} \text{ X } 100$$

2) Physical Functioning =

$$100 - \frac{(Q.1 + Q.2 + Q.3 + Q.6 + Q7 + Q.9 - 6)}{16} \text{ X } 100$$

3) Total =

$$100 - \frac{(Q.1 + Q.2 + Q.3 + Q.5 + Q.6 + Q7 + Q.8 + Q.9 + Q10 - 6)}{16} \text{ X } 100$$

All domains of V-RQOL present values ranging between 0 and 100, where the closer to 0, the worse is the quality of life, and the closer to 100, the better is the quality of life.

Scores between 81 and 100 indicate low impact of voice on quality of life; between 61 and 80, medium impact; and less than or equal to 60, high impact of voice in quality of life[22,23].

Subjects without vocal complaints have average scores of 94.8[19,24], while scores for subjects with healthy and dysphonic voices have, on average, the following scores: Socioemotional domain (99 and 79); Physical domain (98 and 74), and Total domain (97 and 71), respectively [19].

The cutoff values for the total scores are those that separate dysphonic subjects from the vocally healthy subjects, and in the case of V-RQOL, this value is 91.25[5].

When it comes to dysphonia, it is noteworthy that voice problems affect individuals differently and, particularly, with variations depending on the intensity of the disorder, professional occupation, and personality traits. However, studies show that the more severe the voice disorder, the greater the impact on quality of life[5].

Data from the V-RQOL scores were summarized using descriptive statistics, and the scores generated for each domain were presented as mean, standard deviation, and median.

To compare the responses given in JSS and V-RQOL between the two categories, the following statistical tests were used: Mann–Whitney nonparametric test and Spearman's linear correlation coefficient, in order to assess the degree of association between the answers according to categories studied. The significance level was of 0.05. Analyses were processed using SPSS 17.0.

In addition, the descriptive and analytical analysis of the responses in each of the questions in the V-RQOL is presented, using the χ^2 test to compare the categories.

The association between responses to JSS and V-RQOL, according to the professional category, was given by the Pearson correlation coefficient test.

RESULTS

The Content Analysis allowed the identification of two categories and their respective themes:

1. Vocal complaints/problems – themes:
   - alteration in vocal quality and hoarseness;
   - intense demand for vocal use; and
   - unfavorable working environment for vocal health.

2. Voice, work, stress, health, and quality of life – themes:
   - healthy habits: physical activity, balanced diet, rest/sleep, avoiding alcohol and drugs;
   - stressful job; and
   - social and family relationships.

1. Vocal complaints/problems

- Alteration in vocal quality and hoarseness

  (C2) There is a little bit of hoarseness after some games.

  (C8) After a game in which I express myself a lot, I get to the press conference with hoarseness.

  (C10) Sometimes my throat gets dry […] I was voiceless after every single game.

  (C11) At the end of the day, I get a little tired from speaking. (C6) Depending on the work situation […] I get hoarse, aphonic, and it makes everything very difficult!

  (T7) After a week, my voice gets hoarse.

  (T12) At the end of the championship, there is a little bit of hoarseness, sometimes my throat is sore, and sometimes I even get voiceless.

- Intense demand for vocal use
  (C6) Depending on the work situation […] there is a great strain on the voice.

  (T7) When I have training sessions in two different periods […] after a week, my voice is already hoarse.

  (T9) Because I speak a lot during training — before the season, there is a great demand on the physical trainer.

  (T12) There is a strain owing to the prolonged voice use during a 5- or 6-month championship.

- Unfavorable working environment for vocal health

  (C1) Being outdoors […] poses a great challenge.

  (C3) You speak very loudly because of the environment.

  (C13) We are outdoors, with a huge crowd cheering and a lot of noise.

  (C7) Changes in temperature […] when I have training sessions in two different periods […] after a week, my voice is already hoarse.

  (T10) Sometimes I feel tired from speaking so much, from screaming so much […] it is a straining factor.

  (T13) Because some athletes get distracted […] you have to raise of voice, which is a difficulty.

2. Voice, work, stress, health, and quality of life

- Healthy habits: physical activity, balanced diet, rest/sleep, and avoiding alcohol and drugs

  (C2) I work with sports […] it is a healthy lifestyle. (C3) Because of the profession, we take care of our health, body, and mind.

  (C6) I try to exercise, and I realize that cardio activities really improve breathing and voice intonation.

  (C9) I am a former athlete and I try to keep active even today, so this helps me a lot, even with my voice.

  (T2) you have to have a healthy appearance, so that the athletes can look up to you as an example.

(T3) I do not smoke or drink, and I exercise three times a week.

(T4) I my line of work, I have to have a good health and a good quality of life.

(T5) We operate in an environment that favors being physically active.

(T9) I exercise constantly. (T10) If I had enough sleep and am well rested, I have more strength to use my voice, to better articulate words.

(T13) I try to take care of myself, my body is a work instrument too so I think it is essential to have a good quality of life, take care of oneself, have good nutrition, and sleep well.

(T12) The kind of life I lead, with a healthy diet and physical activity at least thrice a week, it is easier for me to breathe and use my voice with more intensity when I need to, with no unnecessary strains.

- Stressful job

(C4) My profession involves a lot of stress, a lot of pressure […] problems happen all the time.

(C5) We live in constant stress; it is really a strain on you.

(C10) You live under constant stress […] there is a lot of pressure on you for results, there is a lot of pressure on you as a person, so quality of life in soccer is really complicated, you really have to take a lot of precautions with health, get tested regularly, exercise [...]

(C12) Being a soccer coach in Brazil is crazy. You have to be in optimal physical condition and great emotional stability. And I have noticed that my hoarseness is closely linked to the emotional field.

(T1) It really impacts quality of life due to the stress and pressure we are subjected to daily.

(T9) Sometimes I feel I am having trouble, when I am more emotionally stressed, because things did not go well in my daily life or in the competition, we have trouble keeping a quality while expressing ourselves, sometimes your voice pitch is louder out of stress and you won't even notice […] this may have affected my health, I have headaches after a game in which I express my emotions intensely, after a very tense game I even have hiccups.

(T10) When you come to work tired and stressed already, you do not even want to talk much […] your voice comes out tired, you have trouble articulating the words.

- Social and family relationships

(T7) You have to have a life outside of work with your family […] balance work and daily life.

(C11) It is interesting, actually, when I am very tired because I helped people, this makes me feel good, makes me feel useful and satisfied, for helping, for positively impacting to people's lives […] it can be a bit paradoxical, it can be positive when I am worn out and it can be negative when I do not say anything.

The results of the JSS and V-RQOL and descriptive and analytical statistics are given in Tables 1 to 3 and Charts 1 and 2.

The results of the total domain scores are presented by category, taking into account the number and percentage of subjects and the obtained value, as follows: Coaches: 6 (23.08%) = 82.1 and 7 (26.9%) = 98.2; and Physical Trainers: 3 (11.54%) = 85.8 and 10 (38.46%) = 96.8 (Table 4).

DISCUSSION

The results of the content analysis showed that both the categories experience vocal complaints/problems, such as vocal fatigue, altered vocal quality, hoarseness, and even aphonia, generally related to work conditions, organization, and environment. Future studies are needed to assess the prevalence of vocal alterations and dysphonia in both the professional categories.

Regarding work organization, it was evidenced that the routine and schedule of championship season games change voice use demand, with negative impacts on health and voice quality. That is, soccer coaches and physical trainers face situations with different demands and expected situations with high demands, which change the needs relating to voice care — similar to what happens with journalists during the coverage of events such as Carnival and the World Cup. Such particularities should be investigated and taken into account in the planning of Speech-Language actions aimed at these sports professionals.

With regard to the environment, problems related to acoustics and noise (and especially aggravated in the contexts of games and championships) were confirmed, as they were already identified in studies on physical educators and trainers[1-3,16].

As for work, health, and quality of life relations, the Content Analysis showed that the categories experience a paradoxical condition of protection and risk.

With regard to protection, it is known that these professionals earn their living from sport and for the sport and, in a context in which society represents sports as connected to health, the subjects expressed concern about being an example to players, fans and society. Thus, coaches and physical trainers look to maintain a healthy lifestyle involving especially physical activity, a balanced diet, rest/regular sleep, and restricting the consumption of alcohol and drugs.

Note that the subjects did not show concern with and/or the specific intention of care regarding their professional use of voice and vocal health promotion. Few mentioned voice in relation to healthy habits (C6, C9, T10, and T12). It is clear that, to maintain the habits cited, subjects are indirectly taking care of their voice[25].

However, one must take into account that, as both categories face intense demand for vocal use[1-3] and that voice plays a fundamental role in the activities of these professionals[16], it would be relevant for them to count on guidance and training on professional use of the voice and on the relevant care for the promotion of vocal health, which are not restricted or limited to the habits they already have and mentioned. Thus, the study highlights the lack of attention, perception, orientation, and preparation of the subjects in both the categories referring to problems directly related to voice and its care.

The risk is also expressed in the organization of work, as they are constantly coping with conflicts, problems, demands, and pressures, which require great emotional balance and can cause exhaustion, stress and generate anxieties, and emotional states that negatively impacts general health, vocal health, and quality of life[12-14]. Working under high strain and pressure results in the adoption of body hypersolicitation strategies, in addition to the negative impact on mental health and generation of states of physical and mental fatigue[6,8,26,27]. However, apparently, in the assessment of job stress (JSS), subjects can find positive compensations in possibilities of high control and social support, which is the dimension with the better situation (Table 1). Table 1 also showed a significant difference in the Demand dimension score between both categories (p=0.029).

The Content Analysis also confirmed that social relations, at work and in the family, are remembered as generators of positive and rewarding sensations and feelings. Thus, the results indicate that social support is realized in this medium in both senses: giving and/or receiving. It is noteworthy that social support takes a protective and important role regarding the health–disease–care process[28].

As for the assessment of job stress, the pooled analysis of the dimensions Demand, Control, and Support (Tables 1 and 2) showed that both categories fall in the Active Work situation, which indicates a good condition as it encourages creativity and can motivate the development of new behaviors. Therefore, it represents a situation with less risk for adverse reactions to the physical and mental health of the professionals[7,8].

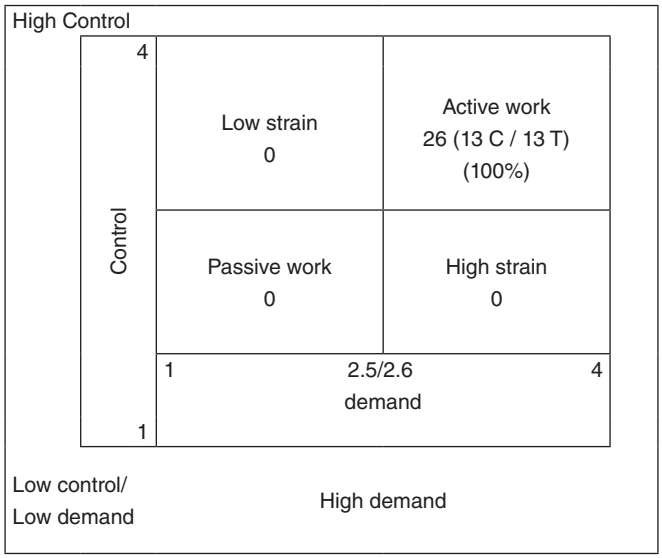
The results distinguish the categories in this study from teachers, who showed an association between voice disorder and a highly demanding (high strain) job and stress in the teaching activity[8,26]. There are certainly many and varied differences between the work of a teacher and the categories under study. Further studies are needed, using other and different methodological instruments, to investigate the characteristics of work conditions in sports and to capture other aspects of the relationship between stress and work from the perspective of soccer coaches and physical trainers.

The V-RQOL results (Table 2) showed mean score values that indicate low impact of voice on quality of life[22,23]. Furthermore, the mean values of both categories are close to values compatible with healthy voices[19], slightly lower than expected for subjects with no complaints (94.8)[24]. In Table 2, statistical tests showed no significant difference between the categories in the domains of V-RQOL: Socioemotional (p=0.88), Physical (p=0.69) and Total (p=0.72). Yet, it should be noted that the situation of coaches is slightly worse compared with the physical trainers.

One must also take the limitations of V-RQOL into account. Because it is, based on the perception of the subjects, that there is the possibility of changes in the results, owing to their capacities being linked to the voice issue and to their realization of the vocal symptoms in relation to the negative aspects of quality of life[29]. Previous studies point to the fact that high scores may indicate that subjects may not be sensitive enough to understand and properly identify the voice impact on quality of life, and it is possible that the scores get "worse" after the intervention groups, which suggests that, indeed, there was increased awareness by the subject of their own voices[29].

It is worth highlighting the importance of undergoing Speech-Language actions that constitute as social spaces and educational processes on health that foster the subjects' awareness,

Chart 1. Demand–Control Ratio (Job Stress Scale) of soccer Coaches and Physical Trainers



Caption: C = coaches; T = physical trainers

Table 1. Mean scores and medians of the Job Stress Scale dimensions (Demand, Control, and Support) by professional category and results of the comparison between categories

Dimensions	Mean Scores		Median		p-value
	Coaches	Physical Trainers	Coaches	Physical Trainers	
Demand	16.4	14.92	16.5	15	0.029
Control	20.9	20.84	20.5	21	0.960
Support	20.4	21.84	21.5	21	0.101

Mann–Whitney test (significance level = 0.05).

attention, and perception concerning their own voice and its possible changes and alterations[29]. It should also be noted the importance of new studies that enable the comparison of the performance and consistency of the subjects' answers to the V-RQOL, before and after Speech-Language Therapy processes.

Table 3 showed that the issues that proved more problematic (values 3–5 in the questionnaire), considered as moderate to major problems, were as follows: Q1 (having difficulty speaking loudly or being heard in a noisy environment); Q3 (not knowing how the voice will sound when you start talking), and Q4 (getting anxious or frustrated because of the voice).

The difficulty for speaking loudly or being heard in a noisy environment is consistent with the conditions of the working environment. The noisy environment may hinder communication, causing intense vocal use that can lead to voice complaints, signs, symptoms, and disorders[1-3]. The performance of the subjects in this question from the V-RQOL points to the need of developing vocal projection from specific techniques, guided by a Speech-Language Pathology.

Statistical tests showed no significant differences for the responses to V-RQOL when comparing the two groups (Table 3). Still, it is worth mentioning some distinctions in the ways of perceiving the difficulties regarding "speaking loudly or being heard in a noisy environment" (Q1) between both categories. The difficulties were mostly reported by coaches (46%) than by the Ts (15.4%). Perhaps, this difference is explained by the fact that physical trainers do not participate so actively in games and championships when, being in crowded fields and stadiums, ambient noise is much more intense.

It may seem somewhat odd that all of the physical trainers and most of the coaches do not consider having trouble in the performance of their work/profession because of their voice (Q7, Table 3). The difference and inconsistency of results between the questions: Q1 "having difficulty speaking loudly or being heard in a noisy environment" and Q7 "having trouble performing work activities because of the voice" may also seem odd. Because the work activities of both categories require the use of voice (with functions and needs related to communicative and interactive efficiency with the sports team and the distant and dispersed players in open and noisy fields[16]) and considering that work is one of the dimensions of quality of life, it can be understood that these professionals may not be properly perceiving the impact of voice on quality of life.

In questions 3 and 4 (Table 3), it is observed that the category of coaches is the one who reports more problems, and the results indicate difficulties in the maintenance/stability of health and voice quality, and it also affirms the relationship between voice and psychoemotional states, in a circle between vocal and emotional symptoms[12]. But, it is curious that the voice impact on quality of life is more perceived in negative feelings resulting from uncertainty, dissatisfaction, insecurity, and depression (questions 3 and 4, Table 3) than at work (question 7, Table 3).

The questions that show less problematic responses (numbers 1 and 2 of the questionnaire, considered as not being a problem or as being a small problem) were the following: Q6 (referring to difficulties on the phone); Q8 (referring to avoiding social outings); and Q10 (referring to becoming less expansive), suggesting that the voice does not have negative impacts on mediated communication processes or on the interaction and socialization of the subject. That is, some subjects perceive negative impacts of voice on the personal dimension but do not perceive them on the socio-interactional dimension.

It is understood, then, that Speech-Language actions to encourage awareness, attention, and perception from the subjects, toward a broader perspective of the relationship between voice, work, and quality of life[29], present themselves as useful and interesting possibilities to help elucidate the real demands and care needs of both categories involved in this study.

When taking into account the cutoff values of the total domain scores of the V-RQOL of 91.25[5], considering the applicability of the instrument in vocal screening, the analysis of the results shows that, considering both categories together, most subjects (17,65.38%) could be considered as "vocally

Chart 2. Pooled analysis of the Demand, Control, and Support dimensions of soccer Coaches and Physical Trainers

Control-demand interaction		C n	T n	%	Situation
High strain	Low control and high demand	0	0	0	Worst / harmful
Passive work	Low control and low demand	0	0	0	Harmful
Active work	High control and high demand	13	13	100	Good
Low demand/ low strain	High control and low demand	0	0	0	Ideal
Strain	Low social support	0	0	0	Depends on the control/demand interaction

Caption: C = coaches; T = physical trainers

Table 2. Distribution of mean, median, and standard deviation of the scores in each of the domains of Voice-Related Quality of Life, by professional category

V-RQOL Domains	Coaches			Physical Trainers			p-value
	Mean	Standard deviation	Median	Mean	Standard deviation	Median	
Total	90.76	11.78	92.50	94.23	5.62	97.50	0.724
Socioemotional	95.19	12.27	100	98.55	2.74	100	0.879
Physical Functioning	87.82	12.89	91.66	91.34	7.88	95.83	0.686

Mann–Whitney test (significance level = 0.05).

Caption: V-RQOL = Voice-Related Quality of Life

Table 3. Descriptive analysis of the questions in the Voice-Related Quality of Life by professional category

Questions in the V-RQOL (Because of my voice)	Coaches (n=13) %	Physical Trainers (n=13) %	p-value
Q1.I have difficulties speaking loudly and being heard in noisy environments			
It is not a problem	53.8	69	
It is a small problem	0	15.4	
It is a moderate problem	23	15.4	>0.05
It is a big problem	15.4	0	
It is a huge problem	7.6	0	
Q2. I run out of breath quickly and need to breathe many times while I speak			
It is not a problem	77	53.8	
It is a small problem	15.4	30.8	
It is a moderate problem	7.6	15.4	>0.05
It is a big problem	0	0	
It is a huge problem	0	0	
Q3. I do not know how my voice will sound when I start speaking			
It is not a problem	46.2	61.6	
It is a small problem	23	30.8	
It is a moderate problem	15.4	7.6	>0.05
It is a big problem	7.6	0	
It is a huge problem	7.6	0	
Q4. I get anxious or frustrated (because of my voice)			
It is not a problem	84.6	77	
It is a small problem	7.6	23	
It is a moderate problem	0	0	>0.05
It is a big problem	15.4	7.6	
It is a huge problem	0	0	
Q5. I get depressed (because of my voice)			
It is not a problem	84.6	100	
It is a small problem	7.6	0	
It is a moderate problem	0	0	>0.05
It is a big problem	0	0	
It is a huge problem	7.6	0	
Q6. I have difficulty talking on the phone (because of my voice)			
It is not a problem	100	92.4	
It is a small problem	0	0	
It is a moderate problem	0	7.6	>0.05
It is a big problem	0	0	
It is a huge problem	0	0	
Q7. I have problems to perform my work activities in my profession (because of my voice)			
It is not a problem	84.6	100	
It is a small problem	7.6	0	
It is a moderate problem	7.6	0	>0.05
It is a big problem	0	0	
It is a huge problem	0	0	
Q8. I avoid social outings (because of my voice)			
It is not a problem	100	100	
It is a small problem	0	0	
It is a moderate problem	0	0	>0.05
It is a big problem	0	0	
It is a huge problem	0	0	
Q9. I have to repeat myself to be understood			
It is not a problem	92.4	61.6	
It is a small problem	7.6	38.4	
It is a moderate problem	0	0	>0.05
It is a big problem	0	0	
It is a huge problem	0	0	
Q10. I have been becoming less expansive (because of my voice)			
It is not a problem	92.4	100	
It is a small problem	7.6	0	
It is a moderate problem	0	0	>0.05
It is a big problem	0	0	
It is a huge problem	0	0	

χ^2 test.

Caption: V-RQOL = Voice-Related Quality of Life

healthy." However, a lower number/percentage (9, 34.62%) of subjects could be considered as "dysphonic" — an indicator of a demand for intervention actions in vocal health, whether they be educational and/or clinical-therapeutic. In addition, on this issue, it is noteworthy that the category of the coaches possessed double the number of subjects that could be considered "dysphonic" (six) when compared with Ts (three).

Regarding the association between responses to the JSS (Demand, Control, and Support dimensions) and to the V-RQOL (Total, Socioemotional, and Physical domains), according to the professional category, Table 4 shows that there was a significant positive linear correlation between the scored of the Socioemotional and the Physical domains of the V-RQOL for coaches (r=0.72; p<0.005) and physical trainers (r=0.78; p=0.002); a strong positive correlation between the Socioemotional and Total domains; and a very strong positive significant correlation between the Physical and Total domains.

Finally, we should point out the limitations of the study, especially the small number of subjects involved and the geographical reality to which teams are circumscribed (Southeast Region of Brazil, São Paulo State). Future studies could involve soccer coaches and physical trainers from different teams in different regions and different conditions (amateur, professional, and elite teams), considering that Brazil is a country of great proportions and different realities. It would also be interesting to conduct a similar investigation with female professionals in both categories.

Table 4. Association between the responses to the Job Stress Scale (dimensions: Demand, Control, and Support) and to the Voice-Related Quality of Life (domains: Total, Socioemotional, and Physical), according to professional category

	JSS			V-RQOL	
	Demand	Control	Support	Total	Socioemotional
Coaches					
Total					
r	0.010	-0.038	0.331		
p-value	0.974	0.901	0.269		
Socioemotional					
r	0.033	-0.129	0.339	0.891*	
p-value	0.914	0.675	0.257	0.000	
Physical					
r	-0.006	0.023	0.289	0.958*	0.723*
p-value	0.985	0.939	0.338	0.000	0.005
Physical Trainer					
Total					
r	-0.143	0.251	-0.477		
p-value	0.641	0.408	0.099		
Socioemotional					
r	-0.380	0.510	-0.245	0.851*	
p-value	0.200	0.075	0.420	0.000	
Physical					
r	-0.082	0.180	-0.511	0.993*	0.781*
p-value	0.790	0.555	0.075	0.000	0.002

Pearson's linear correlation coefficient test.
Caption: V-RQOL = Voice-Related Quality of Life; *p<0,01

There are a limited number of studies focused on the vocal health of soccer coaches and physical trainers, and there is a need for broader studies that include more holistic approaches in the investigation of voice problems, stress, health, work, and quality of life from the perspective of these professionals.

CONCLUSION

Soccer coaches and physical trainers report complaints/problems in their professional use of voice and perceive their work as stressful, inserted in an environment of great pressure and anxiety. However, the perception of the voice impact on quality of life was positive and the mean scores of the V-RQOL questionnaire showed high values for both categories, consistent with healthy voices and subjects without vocal complaints.

The analysis of job stress (JSS) resulted in the characterization of an active work condition for both categories, which suggests a "good" and supportive work condition.

The aspects related to voice, work, stress, health, and quality of life for soccer coaches and physical trainers deserve further investigation.

**RZP is the study advisor and researcher, literature review, participated in paper conception and elaboration, data analysis, procedures and critical review; NBS is researcher, participated in literature review, data collection, data analysis and treatment, paper outline; MILM participated in data treatment and analysis, paper elaboration and critical review.*

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