

Prevalence and Risk Factors for Voice Problems Among Soccer Coaches

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Summary: Objectives. The prevalence of voice problems has been investigated in various occupations, but research investigating sports coaches' voice problems seems to be limited even if coaches are an occupational group whose work requires heavy voice use. The aim of this study was to determine the prevalence of voice problems among soccer coaches and identify risk factors that can contribute to the problems.

Methods/Design. The data were collected with a web questionnaire that was sent to 500 soccer coaches. Overall, 109 male coaches, who practiced soccer coaching to various extents, responded to the questionnaire. The presence of six vocal symptoms was investigated, as well as environmental factors and health-related factors that may have an influence on the voice.

Results. The results showed that the prevalence of voice problems among soccer coaches was high. In total, 28.4% of the participants reported two or more frequently occurring vocal symptoms. The most common symptom was *throat clearing or coughing* followed by *voice becomes low or hoarse*. The coaches who had vocally demanding main occupations alongside their coaching tasks had an increased risk for voice problems. Moreover, a significant association was found between chronic rhinitis and frequently occurring vocal symptoms, as well as between stress and frequently occurring vocal symptoms.

Conclusions. Given the extent of voice problems and the fact that soccer coaches have a vocally demanding occupation, it would be important to increase the awareness of voice use among this group. Soccer coaches are in immense need of more information about voice ergonomics during their coaching education.

Key Words: Voice problems—Prevalence—Soccer coaches—Risk factors—Voice use.

INTRODUCTION

In groups with vocally demanding occupations such as teachers, fitness instructors, and priests, vocal health is an important factor.¹⁻³ Voice problems can have a large impact on people's ability to work and on their quality of life.⁴ Said problems may consequently lead to inability to work, which leads to sick leave and thus increased financial costs for the community.^{4,5} Voice problems can also lead to depression and poor self-confidence.⁴ If the problems turn chronic, changing of profession might be necessary.⁶

The etiology of voice problems is multifactorial. A certain genetic basis has been observed,^{7,8} but the greatest risks are considered to be vocal loading factors in the environment, such as loud background noise, poor room acoustics, and poor air quality.^{1,9-12} General health issues, such as poor respiratory health and poor lifestyle habits, have been shown to contribute to voice problems.^{10,13,14} Demographic aspects, such as gender^{4,6,15} and psychosocial factors,¹⁰ also have an impact on voice problems.

Sports coaches are an occupational group whose work requires heavy voice use. Communication between the coach and the players is usually performed in group situations in which the coach has to speak for long periods of time without interruption. Many sports are practiced outdoors where the background

noise is often high and the distance between the coach and the players is long. Also, weather elements, such as rain and wind, affect the audibility of the voice. Such issues complicate communication and are not conducive to good voice production.^{16,17}

Sports coaches' work can be very stressful and emotionally demanding, especially during matches or competitions.¹⁸ Sports coaches are expected to lead their teams to victory. If a team is not performing as expected, it is often the coach who is blamed, especially on a professional level. Research indicates that psychosocial factors, stress, and emotions are related to voice problems, and these issues have also been found to have a negative impact on voice production by altering the individual's phonation pattern.¹⁹⁻²¹

Research investigating soccer coaches' voice problems is limited. To our knowledge, it seems that only three studies have explored the voice use of soccer coaches.^{16,18,22} Gorham-Rowan et al¹⁶ studied five soccer coaches to evaluate whether a 4-week voice educational program was of benefit to their vocal health. The coaches answered the Voice Handicap Index, which is a psychometrically validated questionnaire to measure the psychosocial handicapping effects of voice disorders.²³ At the start of the training program, each participant reported vocal symptoms such as hoarseness, temporary *voice* loss, vocal straining, and vocal fatigue. One month after the intervention, four of the five participants reported an improvement in vocal quality and an improvement in the ability to maintain their vocal quality during and after a game.¹⁶

O'Neill and McMenamin²² explored the daily experiences of professional soccer coaches' occupational voice use. The study population consisted of five male professional soccer coaches. The results showed that vocal symptoms were common, especially during a match and immediately thereafter. The participants

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reported hoarseness, loss of voice, croakiness, strained voice, and feelings of tightness around the throat. O'Neill and McMenamin²² noted that the coaches shouted during matches and used their voice for long periods. During coaching, they also experienced much psycho-emotional stress.

Buckley et al¹⁸ examined the occupational voice use and vocal health of 12 elite soccer coaches by a mixed-methods approach. Acoustical measurements of the coaches' voice use during training sessions were examined with the Ambulatory Phonation Monitor (KayPENTAX, Lincoln Park, NJ, USA) and the vocal symptoms were investigated with the Voice Capability Questionnaire. Also, one-on-one semistructured interviews with the researcher were completed with the aim of clarifying issues concerning soccer coaches' awareness of their occupational voice use, their vocal health experiences, and the methods they used to manage their voices. The results from the Ambulatory Phonation Monitor measurements showed that the coaches' mean perception phonation time during training sessions was 19.25% (standard deviation [SD] = 4.9%) and their mean vocal intensity during training sessions was 83.67 dB Sound Pressure Level (SPL) (SD 10.25 dB SPL). Across the participant group, the mean fundamental frequency was 150 Hz (SD = 30.5 Hz) during training sessions. Based on these parameters, Buckley et al²² concluded that training players is a very vocally demanding task. The results from the Voice Capability Questionnaire showed that all participants had heavy vocal loads during training sessions and reported experiencing vocal symptoms at least some of the time while coaching. Consistent with other vocally demanding occupations, the most frequently reported vocal symptoms among the coaches were hoarseness and vocal fatigue.^{5,6,24} The results from the interviews showed that coaches acknowledged that their voice use was critical for coaching success, but despite this critical reliance, coaches rarely take into consideration their voice use or vocal health to any degree.

In summary, the present research indicates that voice problems are common among sports coaches.^{18,22} Unfortunately, data directly investigating soccer coaching and voice problems are scarce. Previous studies have obtained only small numbers of participants ($N = 5-12$), and these studies have mainly focused on exploring the vocal health and the pattern of voice use among soccer coaches. Voice problems have been defined in various ways and have also been termed differently (eg, voice disorders or voice problems) in previous literature.^{4,6,10,13,25} The term *voice problems* was deemed appropriate for use in this study, because no perceptual assessment of the participants' voices was performed. The aim of this study was to determine the prevalence of voice problems among soccer coaches and identify risk factors that can contribute to voice problems in this particular occupation.

MATERIALS AND METHODS

Participants

The target population for the present study was the members of the soccer coaches association in Finland, *Suomen Jalkapallovalmentajat, ry* (SJV). Contact was made with the chairman of SJV. The chairman distributed a mass e-mail to all members of the association. Participation in the study was voluntary,

and anonymity when reporting the results was guaranteed to the participants. Approval to conduct the study was given by the Ethics Committee of the Department of Psychology at Åbo Akademi University. The total number of members in SJV was about 500, of which less than 1% were women. Overall, the response rate was 21.8% and all ($N = 109$) respondents were men. Their mean age was 44.81 (SD 9.56, age range: 18–69 years).

On average, the participants had worked 16.36 years (range: 1–50 years) as soccer coaches. The participants were heterogeneous in terms of how they exerted the soccer coaching occupation. For 25.7% ($n = 28$), soccer coaching was a paid full-time occupation; for 33.9% ($n = 37$), coaching was a paid part-time occupation; and for 40.4% ($n = 44$), coaching was an unpaid hobby that they carried out in their leisure time. The majority of the participants, 67% ($n = 73$), had a main occupation alongside soccer coaching. These participants represented a variety of different occupations. Common occupations were salesmen, teachers, military personal, office workers, and engineers. The sample included seven participants who neither coached full-time nor had a main occupation. Of these participants, five coached in their leisure time and two participants coached on a paid part-time basis.

Data collection

The data were obtained with an electronic questionnaire containing 34 multiple choice questions (two, three, or four answering alternatives) and open-ended questions, which was designed for this study. Question and page skip logic was applied, which meant that additional questions showed up for some respondents depending on the response options they chose earlier. This was used to create custom paths for different participants and to avoid extraneous responses for those participants the questions did not concern. The questionnaire was self-explanatory, and no explanations or definitions were provided. The questions chosen were based on previous studies on voice problems in various populations.^{7,9,13,26,27} Questions regarding issues of vocal behavior, health-related risk factors, psycho-emotional risk factors, and environmental risk factors were explored.

Questions on vocal symptoms in general occurring during the past year were asked. The vocal symptoms were *voice becomes strained or tires*, *voice becomes low or hoarse*, *voice breaks while talking*, *difficulty in being heard*, *throat clearing or coughing while talking*, and *sensation of pain or lump in the throat*. The frequency alternatives for the occurrence of the symptoms were daily, weekly, seldom, or never. These six vocal symptoms have been investigated in a number of previous studies.^{7,9,13,26,27} Participants were also asked about their voice use and vocal symptoms specifically related to the coaching work environment. These questions pertained to the following: *problems in having their voice heard during training sessions*, *overstrained voice after a match or training session*, *having been compelled to shout during training sessions*, and *what means they used to support their voice during coaching*.

Statistical analysis

IBM SPSS Statistics 21 software (IBM, Armonk, NY) was used for the statistical analyses. Cross tabulations and chi-square tests were used to perform bivariate analyses between selected variables.

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