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Factors Conditioning Proper Voice Use as Assessed by Early School Education Teachers

Czynniki warunkujące poprawne posługiwanie się głosem w ocenie nauczycieli edukacji wczesnoszkolnej

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Abstract

Aim. The aim of this study was to analyze the awareness of preschool and early school teachers in terms of factors determining proper voice use and to identify the most common symptoms of vocal strain, risk factors, and strategies applied to cope with voice disorders.

Methods and materials. The study was based on a diagnostic survey conducted among a group of 58 preschool and early school teachers. A questionnaire method was used, incorporating the self-assessment worksheet „Poobserwuj swój głos” [“Observe Your Voice”] by Mirosław Kisiel. The study was conducted both in person and online. The data collected was both quantitative and qualitative in its nature and was analyzed using percentage and descriptive analysis.

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Results and conclusion. The study results indicate that teachers often experience symptoms of vocal strain, such as a dry or scratchy throat, hoarseness, vocal fatigue, and the need to clear their throats. The most important risk factors include stress, speaking in noisy environments, and excessive vocal strain resulting from working conditions. The respondents demonstrate partial awareness of issues related to voice emission; however, the measures they take are mainly *ad hoc* and focused on alleviating symptoms rather than on prevention. The results indicate a need to strengthen education regarding vocal hygiene and voice emission techniques among elementary school teachers.

Keywords: voice, early school and preschool teacher, vocal hygiene, voice emission, vocal strain, professional awareness

Abstrakt

Cel. Nauczyciele edukacji wczesnoszkolnej i przedszkolnej należą do grupy zawodowej szczególnie narażonej na przeciążenia narządu głosu. Wielogodzinne prowadzenie zajęć, konieczność mówienia w hałasie, stres zawodowy oraz nieodpowiednie warunki akustyczne powodują intensywną eksploatację aparatu fonacyjnego. Celem pracy była analiza świadomości nauczycieli edukacji przedszkolnej i wczesnoszkolnej w zakresie czynników warunkujących prawidłowe posługiwanie się głosem oraz identyfikacja najczęstszych objawów przeciążenia narządu głosu, czynników ryzyka i stosowanych strategii radzenia sobie z dolegliwościami głosowymi.

Metody i materiały. Badanie miało charakter sondażu diagnostycznego i zostało przeprowadzone w grupie 58 nauczycieli edukacji przedszkolnej i wczesnoszkolnej. Zastosowano metodę ankiety z wykorzystaniem arkusza samooceny „Poobserwuj swój głos” autorstwa Mirosława Kisiela. Badania realizowano w formie stacjonarnej oraz internetowej. Uzyskane dane miały charakter ilościowo-jakościowy i zostały opracowane z wykorzystaniem analizy procentowej oraz opisowej.

Wyniki i wnioski. Wyniki badań wskazują, że nauczyciele często doświadczają objawów przeciążenia narządu głosu, takich jak: suchość i drapanie w gardle, chrypka, zmęczenie głosu oraz konieczność odchrząkiwania. Do najważniejszych czynników ryzyka należą stres, mówienie w hałasie oraz nadmierne obciążenie głosowe wynikające z warunków pracy. Respondenci wykazują częściową świadomość problemów związanych z emisją głosu, jednak podejmowane działania mają głównie charakter doraźny i skoncentrowany na łagodzeniu objawów, a nie na profilaktyce. Wyniki wskazują na potrzebę wzmocnienia edukacji w zakresie higieny i techniki emisji głosu wśród nauczycieli edukacji elementarnej.

Słowa kluczowe: głos, emisja głosu, higiena głosu, nauczyciel edukacji wczesnoszkolnej i przedszkolnej, przeciążenie narządu głosu, świadomość zawodowa

Introduction

The voice plays a fundamental role in interpersonal communication and social functioning. It is particularly important in professions that rely on constant verbal contact. Maintaining the proper condition and technical efficiency of one's voice is an essential element of daily occupational health care for all those working in professions where the voice is a fundamental work tool. Kataryńczuk-Mania emphasizes that a properly prepared voice, with correct intonation, diction, and proper self-presentation, can enable success in everyday life (Kataryńczuk-Mania, 2014). In the case of teachers, however, it can be observed that conscious and consistent actions aimed at improving voice emission conditions are not always taken at the proper time (Majzner, 2020). This means that, although the human vocal organ is adapted to high levels of effort and intensive use, phonation problems in the teaching profession often have particularly severe consequences. Voice-related difficulties may lead not only to discomfort and professional problems, but even to resignation from this profession (Śliwińska-Kowalska & Niebudek-Bogusz, 1999).

Elementary education teachers are a professional group particularly vulnerable to vocal strain. Long hours of teaching, the need to speak in noisy environments, job stress, and inappropriate acoustic conditions result in intensive vocal strain. As Hamerlińska points out, teachers are the professional group most frequently diagnosed with voice disorders (Hamerlińska, 2021). These problems occur 2–3 times more often than in people who do not use their voice as a professional tool. Despite this, only about 15% of them decide to consult a specialist and seek treatment (Sinkiewicz, 2011). Furthermore, voice disorders are observed 2–3 times more often among Polish female teachers than among women who do not use their voice professionally (Śliwińska-Kowalska *et al.*, 2006).

Teachers' self-awareness regarding voice management is therefore becoming a crucial issue, encompassing theoretical knowledge, including the principles of vocal hygiene, the mechanisms of phonation disorders, proper emission, and methods for preventing vocal strain. Equally important is the ability to self-reflect on one's own voice, recognizing its quality, endurance, and production patterns in daily teaching. A teacher who is aware of the functioning of their vocal apparatus can assess whether they are speaking naturally and economically, or whether they are experiencing excessive muscle tension, abnormal breathing, or vocal strain. Such self-assessment allows for faster identification of the first symptoms of strain and, consequently, enables taking preventative measures. In this context, Kisiel (2020) emphasizes that awareness of one's own vocal conditions should be one of the decisive factors in choosing a career path.

Voice as the Teacher's Work Tool

The voice and the way we speak constitute a key element of our individuality, as they not only convey the content of our utterances but also reveal emotions and feelings. They thus contribute to the psychological mechanism of forming a first impression. It can be compared to a fingerprint – it is unique and unrepeatable, and its clear, full, and appropriately modulated timbre attracts attention, facilitates interpersonal communication, and fosters building respect and positive reception (Płusajska-Otto, 2017). Simultaneously, it is a fundamental tool for linguistic communication, as emphasized by Walencik-Topiłko (2009). She points out that the particular importance of phonatory abilities is revealed in the context of choosing a profession, especially this where the quality of work performed depends on the efficiency of the vocal apparatus. In such cases, certain quantitative parameters related to long-term use are expected as well as qualitative parameters such as appropriate intensity and modulation. These requirements apply, among others, to the teaching profession.

In the teaching and upbringing process, the voice serves as a basic tool for transferring knowledge, building relationships with students, and organizing classroom work. This means that its quality and condition directly impact not only the effectiveness of teaching, but also the teacher's comfort and the way students perceive the delivered content. Skillful use of voice emission capabilities, including modulation, tone shifting, and adjusting the intensity of speech, can favor greater student engagement in the learning process and enable easier understanding of the shared content. Therefore, it provides important support for teachers in implementing the teaching process and building authority in relationships with students (Majzner, 2024).

At the same time, the issue of voice emission is complex and multifaceted, and the number of factors affecting its quality is significant. In this regard, Guzy (2019) points to the presence of internal and external factors. The former group includes age, the ability to make contact with others, changes in the central and autonomic nervous systems, improper phonation and voice production technique, respiratory capacity, structural changes in the vocal organ, and gender. Meanwhile, the latter group includes years of experience, working conditions and preparation for work, the nature of the subjects taught, the organization of the teaching process, psychosocial stress, including stress and adjustment disorders, as well as habits, neglecting the first symptoms of voice disorders, taking certain medications, general physical condition, fatigue, exhaustion, overuse of the voice during upper respiratory tract infections, poor posture, and frequent infections among students. The factors presented influence the development of voice difficulties and are related to both temperament and personality traits, as well as psychosocial stress and health behaviors. Guzy (2019) emphasizes that due to the complexity of the issue discussed, it is impossible to clearly assign individual

elements to a single category. Some of them may simultaneously belong to two groups, e.g., external-psychosocial or internal-psychosocial (Guzy, 2019).

Analysis of the determinants related to functioning of vocal apparatus indicates that individual determinants do not occur in isolation but rather form an interconnected system of biological, psychological, social, and environmental factors. Guzy (2019) states that due to the multidimensional nature of this phenomenon, it is impossible to clearly assign individual determinants to separate categories. In practice, many of them simultaneously affect multiple levels of human functioning, resulting in the intertwining of internal, external, and psychosocial factors.

The complexity of these relationships is confirmed by research conducted both in Poland and abroad. Analyses concerning teachers indicate that the occurrence of voice disorders and diseases is associated not only with individual predispositions, but also with the specificity of the work environment. A correlation has been demonstrated between reported voice complaints and working in high-noise environments (Crandell & Smaldino, 2000), working in poorly ventilated rooms (de Medeiros *et al.*, 2008), as well as a large number of classes, the need to frequently raise one's voice, and working at the primary school level (Ubillos *et al.*, 2015). The obtained results confirm that voice disorders in teachers are multifactorial, and their occurrence results from the interaction of individual and environmental factors.

A study on voice disorders among primary school teachers (Munier & Kinsella, 2008) showed that teachers working with younger students are particularly vulnerable to developing voice problems. The most frequently reported complaints were dry throat and vocal fatigue. The study results confirmed that voice disorders are a common problem in this professional group, affecting both work comfort and professional performance. The authors also emphasized the need for further preventive and interventional measures aimed at identifying and reducing risk factors, as well as reducing the negative consequences of voice problems on teachers' health and work.

Research Procedure

The aim of this study was to analyze vocal function in a group of preschool and early school teachers. The study was exploratory in nature and constituted a preliminary exploration of the issue, meaning the results cannot be fully generalized to the entire population of teachers. Fifty-eight preschool and early school teachers participated in the study. Women predominated in the study sample, constituting 93.10% of the participants (n=54), while men represented 6.90% (n=4). A diagnostic survey was used, using a questionnaire as the research technique. The research was conducted both in-person and online, allowing for access to individuals working

in diverse environmental and organizational settings. The following research questions were formulated: 1) How often do preschool and early school education teachers experience symptoms of vocal strain? 2) What work-related risk factors most often affect teachers' voice health? 3) What strategies do teachers use to cope with vocal complaints? 4) Are teachers aware of changes in the sound of their own voices and the strain they experience while working? 5) To what extent do teachers take preventative measures in the areas of vocal hygiene and emission?

The research tool was the self-assessment sheet „Poobserwuj swój głos” [“Observe Your Voice”] by Kisiel (2012), which allowed for a subjective assessment of vocal function, the identification of the most common symptoms of vocal strain, and an analysis of ways to cope with complaints occurring in teachers' daily work. The collected data were quantitative and qualitative in nature and were processed using percentage and descriptive analysis, which allowed for the determination of the frequency of the studied phenomena and their interpretation in the context of teachers' professional work.

Research Results

In the conducted study, participants were asked to evaluate their own voices as heard in audio and video recordings. Forty-six respondents, representing 79.3% of the studied group, answered indicating they noticed differences. The most common references were to voice tone, pitch, timbre, and speaking rate. The participants noted, among other things, that they spoke “loudly and quickly,” and also expressed surprise at the sound of their own voices, describing them as nasal, quiet, boring, or slow. Many participants emphasized the difference between the perception of their voices as heard while speaking and the sound of their voices in the recordings. There were also comments regarding their voice pitch, which was described as high-pitched or even childish, which some respondents found uncomfortable. Some participants explicitly stated that they disliked their voice, while others noted its low timbre or unusual sound.

The next questions concerned teachers' speaking style, particularly the pace of speech and the volume and tone of their voice, which were described in the question as loud and sharp or calm and gentle. Analysis of the responses indicates that the speaking style of the participants is strongly influenced by the situation they find themselves in and the accompanying emotions. The majority (49 participants, *i.e.*, 84.5%) of the participants declared a tendency to speak faster in stressful situations, when nervous or excited, or when they wanted to convey a large amount of information in a short time. Some respondents (23 participants, *i.e.*, 39.6%) also indicated that they speak loudly and sharply due to the specific nature of their work, the need to communicate with a larger group of people, or their own personality traits. At the same time, many

participants (33 participants, *i.e.*, 56.9%) emphasized that they strive to speak calmly and gently on a daily basis, especially when working with children or in situations requiring calm and adapting their communication style to the recipient. The participants' responses demonstrate that the pace and volume of their voice are variable and depend on both their emotional state and the social or professional context. Some respondents also noted the physical consequences of raised voices, such as hoarseness or sore throats after intense speaking. Table 1 presents responses regarding the subjective assessment of voice disorders by early school and preschool teachers.

Table 1

Frequency of voice disorder symptoms in the study sample

Symptom	Very often n (%)	Often n (%)	Occasionally n (%)	Does not occur n (%)
My voice is getting tired	6 (10.34%)	11 (18.96%)	26 (44.83%)	15 (25.86%)
I feel short of breath when I speak	9 (15.52%)	5 (8.62%)	18 (31.03%)	26 (44.83%)
My throat hurts when I talk for a long time	8 (13.79%)	15 (25.86%)	19 (32.76%)	16 (27.59%)
I have to clear my throat	8 (13.79%)	17 (29.31%)	19 (32.76%)	14 (24.14%)
After using my voice for a long time, I notice a dry throat	13 (22.41%)	11 (18.96%)	24 (41.38%)	10 (17.24%)
I feel discomfort caused by ten- sion in the muscles of my neck/ nape/throat	6 (10.34%)	9 (15.52%)	24 (41.38%)	19 (32.76%)
My voice sounds like it lacks en- ergy and is fatigued	3 (5.17%)	8 (13.79%)	19 (32.76%)	28 (48.27%)
I have difficulty speaking loudly, especially in front of a large group of people	5 (8.62%)	17 (29.31%)	19 (32.76%)	17 (29.31%)

Note. *n* = number of respondents; % = percentage of respondents in the entire sample (*N* = 58). Data come from a closed-ended, single-choice question with a four-point response frequency scale (*very often*, *often*, *occasionally*, *does not occur*). Due to rounding, the sums of percentages may not amount to exact 100%.

The majority of the teachers surveyed experienced symptoms of vocal strain at least occasionally. The most common symptoms reported were vocal fatigue, dry throat, and the need to clear one's throat, which may indicate excessive vocal effort and poor vocal hygiene. Regular occurrence of the symptoms described above can lead to a deterioration in voice quality and the development of chronic phonation disorders.

The most common symptom in the studied group was dry throat after prolonged vocal use, with 22.41% of respondents experiencing it very often and 41.38% experiencing

it occasionally. The need to clear one's throat was also frequently reported, with over 43.10% experiencing this symptom often or very often. Approximately 75% of respondents experienced vocal fatigue at least occasionally, while 39.65% reported a sore throat occurring often or very often during prolonged speaking. The least frequently reported problem was a lack of energy in the voice, with over 51.72% experiencing it at least occasionally. More than half of the study participants also had difficulty speaking loudly in front of a large group of people.

The character of the respondents' answers suggests the presence of vocal strain symptoms, and the obtained results may indicate insufficient teacher awareness of voice emission principles, prevention, and vocal hygiene. Regular occurrence of the analyzed symptoms may, in the long term, lead to deterioration of voice quality, reduced communication comfort, and reduced vocal efficiency. This may also negatively impact the effectiveness of teaching and upbringing tasks, especially in situations requiring prolonged use of voice. Recurrent vocal strain symptoms may also contribute to the entrenchment of incorrect phonatory habits and increase the risk of developing chronic voice disorders. The obtained results therefore indicate the need to strengthen preventive measures aimed at raising teachers' awareness of voice protection and developing proper voice emission skills in everyday professional practice.

To further analyze how they perceive their own voice and understand its use in communication, the respondents were asked open-ended questions about changes in voice quality, conscious modulation of speech, and characteristics of a voice considered attractive. Analysis of the respondents' answers indicates that most of them do not perceive significant changes in their own voice quality over time. Over half of the respondents (36, or 62.07%) stated that they did not notice a difference in the sound of their voice. This may indicate gradual voice changes that are difficult to notice in everyday life. However, some respondents (22, or 37.93%) indicated that their voices sounded better at a younger age or before starting their professional career. These responses may suggest the influence of age and long-term voice emission on the voice quality of early childhood education teachers.

Analysis of responses regarding conscious changes in voice tempo, volume, pitch, and timbre shows that most respondents are able to modify their voice depending on the communication situation. Most respondents (37, or 63.79%) indicated that they do so consciously during their professional work, particularly to engage children, interpret text, or adapt their speaking style to stressful situations. However, some (13, or 22.41%) stated that these changes occur automatically and are not always fully conscious. It is also worth noting that several respondents (8, or 13.79%) reported no changes in voice tempo, volume, or timbre. These results may indicate developed communicative competence and the ability to adapt their voice to the recipient and the situation.

Responses regarding the participants' favorite voice were dominated by terms related to gentleness, calmness, warmth, and a low timbre (54 respondents, or 93.1%). The respondents often mentioned the voices of famous actors and voice-over artists, such as Krystyna Czubówna and Piotr Fronczewski, noting their diction, calmness, and distinctive tone. Attractiveness was most often associated with warmth, gentleness, calmness, and clarity. There were also responses (4 respondents, or 6.89%) that emphasized the importance of a rougher or lower timbre, which, according to the respondents, added authenticity and emotionality to their statements.

The next questions presented to the participants concerned changes in voice quality depending on the part of the day and their subjective assessment of their own voice attractiveness. Analysis of the responses indicates that over half (41, or 70.69%) of the respondents noticed differences in the quality and sound of their voice throughout the day. Most often (30, or 51.72%), the participants rated their voices as best in the morning or before noon. Their voices were described as clearer, louder, and more distinct. However, some respondents (11, or 18.96%) indicated that they experienced hoarseness, a dry throat, or the need to clear their throat after waking up. In the evening, however, their voices were most often described as tired, quieter, or hoarse. Many also reported a sore throat and increased effort when speaking at the end of the day. This may indicate gradual strain on the vocal apparatus throughout the day and insufficient voice regeneration. Some respondents (17, or 29.31%) said they did not notice any significant changes in the sound of their voices regardless of the part of the day. This may indicate individual differences in the performance of the vocal apparatus and the way it is used.

Early childhood teachers' responses regarding the attractiveness of their own voices reveal that many respondents have a critical attitude toward their own voice tone and voice emission. The respondents most frequently (25, or 43.03%) desired their voices to be louder, clearer, calmer, or lower-pitched. Comments also included remarks about slurred speech, excessively fast speaking speed, and a lack of attractiveness. However, some indicated receiving positive comments regarding a pleasant or expressive voice. The results indicate that the respondents are aware of the characteristics of their own voice and its impact on communication and social perception. There is also a clear need to improve voice quality and increase confidence in using it.

To identify the most common voice problems, respondents were asked about the frequency of selected symptoms and the methods they use to cope with voice problems. The results, presented in Table 2, allowed for an assessment of the prevalence of vocal strain symptoms and the actions teachers take to improve their voice comfort.

The most common complaints among early childhood education teachers were dry throat, scratchy throat, and hoarseness. These symptoms occurred daily, weekly, and monthly, which may indicate chronic vocal strain resulting from intensive voice use at work. The highest daily incidence was noted for dry throat and scratchy throat.

These findings may indicate excessive vocal effort, insufficient hydration, or unfavorable working conditions, such as dry air or prolonged speaking. These symptoms, although often overlooked, may be among the first signs of phonatory strain and precede the development of more advanced voice disorders.

Hoarseness was also a frequently reported complaint, occurring mainly weekly and monthly. Symptoms such as shortness of breath while speaking, a feeling of effort when speaking, or difficulty producing the voice may indicate poor vocal technique and overload of the phonatory apparatus. Their presence can lead to increased fatigue during professional duties, and, consequently, reduced work comfort and the quality of communication with students. The teachers surveyed were less likely to report more severe symptoms, such as voice breaking, speaking only in a whisper, or a feeling of a “lump” in the throat, however their presence may indicate the need for specialist consultation and preventative measures. Even sporadic occurrences of such symptoms should not be ignored, as they may indicate progressive changes in the vocal organs requiring in-depth diagnostics. The results confirm the need for systematic monitoring of teachers’ voice condition and the implementation of preventive and health education measures aimed at protecting the vocal apparatus.

Table 2

Frequency of voice functioning related symptoms and coping strategies used

Symptom	Daily	Weekly	Monthly	Coping strategies
A feeling of throat discomfort	3	6	11	drinking water, reducing vocal strain
A feeling of throat tiredness	–	5	3	pauses in speaking, vocal rest
Scratching throat	11	15	20	hydration, drinking water regularly
Sore throat	1	4	14	voice rest, medications (OTC)
Dry throat	13	15	11	hydration, air humidification
Tickling in the throat	5	7	9	avoiding clearing your throat, drinking water
A feeling of tension in the throat (a feeling of having a tense throat)	–	3	6	neck and shoulder relaxation exercises
Heartburn	2	9	13	proper diet, Zuber water, medications
A feeling of a lump in the throat	–	1	1	–
Voice breakdown	–	–	2	voice rest
Hoarseness	4	11	19	medications, specialist consultation, throat gargling, voice sparing

Symptom	Daily	Weekly	Monthly	Coping strategies
Change in voice pitch	–	4	2	medical consultation, voice exercises
Limited vocal range	2	3	5	specialist consultation if necessary, medications, exercises
Problems with producing voice	1	8	4	breathing control, vocal exercises
Shortness of breath while speaking	–	12	10	breathing exercises
A feeling of strain when speaking	2	7	4	medicines, linseed
Whispering	–	1	2	specialist consultation

Note. The data present the frequency of reported voice symptoms across three time periods (*daily, weekly, monthly*). Values in the table represent the number of responses (*n*) in a given frequency category. The absence of a given symptom is indicated by the symbol –. The respondents could indicate the frequency of each symptom independently of the other items (multiple-choice question). Percentages were not calculated because the analysis is descriptive and concerns the number of responses in each category. There were no missing data in the study; all participants answered all questions.

Analysis of responses regarding teachers' strategies indicates that the respondents undertake a variety of actions aimed at reducing vocal strain-related symptoms. The most common responses included increased hydration, reduced vocal effort, and vocal rest. Some respondents also reported practicing breathing and relaxation exercises, controlling their speaking style, and avoiding excessive voice raising. In cases of more severe symptoms, teachers indicated the need to limit speaking or consult a specialist. These responses indicate that the respondents recognize the relationship between voice use and emerging symptoms, but the strategies employed are primarily short-term and symptomatic. This means that the actions taken focus primarily on mitigating the effects of strain and less on eliminating its causes. This may indicate a need to increase awareness of prevention and proper vocal hygiene among elementary teachers. The results also suggest the value of including content on vocal protection and the principles of proper voice emission in teacher education and professional development.

In order to identify the most common risk factors affecting vocal health, the surveyed teachers were asked about the frequency of selected behaviors and situations that could lead to vocal strain. The results indicate that the participants are exposed to numerous factors that can negatively impact vocal quality and increase the risk of phonation disorders. The most common risk factor was stress and excitement, which 29 participants experienced daily. This result may indicate the strong influence of emotional tension on the functioning of the vocal apparatus. Stress can lead to increased muscle tension in the neck and throat, which consequently affects voice quality and in-

creases the effort required to speak. Long-term emotional tension can further contribute to the perpetuation of abnormal phonation patterns and increase susceptibility to voice disorders. The results confirm that psychosocial factors constitute a significant risk factor for vocal strain in teaching and should be considered in both preventive measures and programs supporting the professional well-being of this group.

The response “speaking in noise” was also very common among the respondents. Daily exposure to this factor was reported by 24 participants (41.4%), while 17 participants (29.3%) indicated that they experienced it at least once a week. This may indicate the need to frequently raise their voice during professional work, which contributes to vocal cord strain and the development of phonation problems. The results confirm that noise is a significant risk factor for voice disorders in teaching, as it hinders effective communication and requires increased vocal volume.

The respondents also highlighted problems related to improper vocal technique while singing and habitual throat clearing. These behaviors can lead to irritation of the throat mucosa and excessive strain on the vocal apparatus. In the long term, they may contribute to the entrenchment of poor phonation habits and increase susceptibility to chronic voice problems.

Habitual loud speaking and shouting also proved to be a significant problem, as they increase vocal strain and can contribute to chronic hoarseness or vocal fatigue. This finding seems particularly relevant to the work of preschool and early school teachers, who often operate in environments that require keeping constant attention of large groups of children.

Health factors such as allergies, sinusitis, gastroesophageal reflux, and frequent throat infections were cited significantly less frequently. This may suggest that respondents are more likely to perceive the impact of factors related to the organization and specificity of their professional work, rather than health-related conditions, on the condition of their own voices.

The results presented in Table 3 indicate that some respondents are exposed to stimulants such as alcohol and cigarettes, which can negatively impact the mucous membrane of the throat and the functioning of the vocal cords. Regular exposure to such factors may increase the risk of chronic voice disorders and also reduce the ability of the vocal organ to regenerate after intense phonatory effort. It should be emphasized that the effects of stimulants are not limited to a deterioration in voice quality; they can also increase tissue susceptibility to irritation and inflammation, which consequently impairs proper voice production.

Teachers also operate in an environment that places both physical and emotional strain on the vocal organ. The specific nature of teaching requires long hours of voice use, often in high-noise environments, while simultaneously experiencing emotional stress and the responsibility associated with teaching and educational tasks. The simultaneous presence of multiple risk factors can lead to a gradual deterioration of voice quality and increase the risk of chronic phonation problems. The accumulation of occupational, health, and environmental stressors seems particularly detrimental, as their coexistence can exacerbate the negative effects of individual factors.

Table 3

Frequency of the occurrence of risk factors related to voice function and ways to reduce them

Risk factors	Daily	Weekly	Monthly	Ways of reducing the frequency of risk factors
Speaking when the voice is already tired	6	18	4	voice rest, taking breaks
Recurrent cough	2	7	13	medications (OTC), medical consultation
Habitual throat clearing	13	8	2	drinking water, pauses in speaking, self-control
Speaking during a throat infection	–	2	4	warm drinks, voice rest
Endocrine disorders	2	–	–	pharmacological treatment, body regeneration
Allergy, sinusitis	9	6	5	specialist consultation, medications
Frequent colds and flu	1	–	8	medical consultation, strengthening immunity
Gastric reflux	3	1	4	medications, Zuber water, changing eating habits
Taking certain medications (hormonal, steroids)	6	–	2	awareness of the effects of medications, specialist consultation
Alcohol, cigarettes, drugs	11	8	16	limiting or eliminating the use of substances
Speaking in noise	24	17	9	avoiding raising your voice, pauses, class control
Habitual loud speaking	6	12	11	voice self-control
Shouting, calling	8	13	2	avoidance, control of vocal behavior
Singing with poor technique	14	19	1	voice emission exercises, recordings, repertoire adjustments
Using an unnatural voice pitch	–	11	–	self-control, specialist consultation
Stress, excitement	29	11	7	relaxation techniques, self-control

Note. The table presents the frequency of risk factors related to voice function across three time periods (*daily, weekly, monthly*). The values in the table represent the number of responses (*n*) in a given frequency category for a given factor. The absence of a factor is indicated by the symbol –. The participants could indicate the frequency of each factor independently of the other items (multiple-choice question). Percentages were not calculated because the analysis is descriptive and concerns the number of responses in each category. There were no missing data in the study – all participants answered all items.

Responses regarding teachers' methods for reducing the frequency of risk factors indicate that teachers most frequently took steps to reduce vocal strain through vocal rest and taking breaks. The respondents primarily emphasized the need to regenerate the voice, limit excessive effort while speaking, and control the volume of speech. Other frequently used strategies included maintaining hydration, avoiding raising one's voice, and limiting situations requiring prolonged or intense speaking. Furthermore, some teachers also mentioned the use of breathing exercises, relaxation techniques, and conscious control of voice emission. The respondents also reported taking steps to treat infections, allergies, or reflux, as well as increasing their attention to body regeneration and immunity. Analysis of the responses reveals that most strategies used by teachers focus on limiting the effects of vocal strain rather than eliminating the source of the problem. Actions taken after the onset of symptoms, such as voice rest or limiting speaking, predominate, while systematic preventive measures aimed at improving vocal technique were less frequently indicated. The results indicate that teachers are aware of the need to protect the vocal organ and take steps to reduce the risk of vocal strain. However, the strategies employed are mostly *ad hoc*, primarily based on voice rest and temporarily reducing vocal effort. This may indicate that the respondents' knowledge of voice disorder prevention is primarily practical and intuitive, stemming from their own professional experience, and is less based on specialized knowledge of voice hygiene and production. It is also worth noting that the relatively infrequent mention of voice exercises, breathing training, or regular specialist consultations may suggest insufficient preparation of teachers to consciously use their voice as a basic work tool. However, in the case of professions based on intensive verbal communication, preventive measures should be systematic and long-term, not solely interventional. This may suggest the need for broader education in the prevention of voice disorders and the development of lasting vocal hygiene habits. The research results emphasize the importance of considering vocal health issues both in the preparation for the teaching profession and in the professional development of those already practicing this profession.

Conclusion and Discussion

The study analyzed the functioning of the vocal apparatus in a group of preschool and early school teachers. The results obtained indicate that the teachers studied are at risk of experiencing various ailments related to vocal strain. This is confirmed by the presence of symptoms such as dry and scratchy throat, hoarseness, vocal fatigue, and the need to clear the throat. These symptoms are recurring and multifactorial, suggesting a connection with long-term use of the vocal apparatus in professional settings. Of particular note is the fact that some of the symptoms analyzed occurred regularly,

which may indicate not only periodic vocal strain but also the gradual entrenchment of adverse changes in vocal function. According to the observations of Niebudek-Bogusz (2009), teachers constitute a professional group particularly vulnerable to the development of voice disorders compared to individuals who do not use their voice as a primary work tool. The author also emphasizes that a crucial element of prevention is systematic training for professional voice users in vocal hygiene and the development of proper vocal emissions habits, which can significantly reduce the risk of overstrain and the development of chronic phonation problems (Niebudek-Bogusz, 2009). Proper voice emission is a process that requires commitment and a comprehensive approach, encompassing knowledge in the field, systematic work, skill development, and regular practice (Kataryńczuk-Mania, 2020). The results of the conducted research seem to confirm the validity of these postulates, as despite being aware of the disorders, many teachers still experience symptoms characteristic of vocal strain.

At the same time, the results regarding teachers' coping strategies indicate that respondents primarily take immediate action, focused on alleviating existing symptoms, such as vocal rest or speaking breaks. Preventive measures aimed at lasting improvement in voice emission and eliminating the causes of strain are less frequently implemented. This may indicate a discrepancy between awareness of voice problems and the systematic implementation of preventive measures to reduce them. This pattern of practices is reflected in epidemiological data. According to a 2023 report by the Institute of Occupational Medicine, chronic vocal disorders are the third most common cause of occupational diseases in Poland. The report also indicates that the highest incidence of these conditions is recorded among teachers, who accounted for the vast majority of cases in 2023 (347 of 353 reports). It is worth noting that this group was predominated by women, further underscoring the scale of the problem in professions requiring intensive and prolonged use of the voice (Świątkowska & Hanke, 2024). The data presented indicate that teachers' voice problems are not isolated but constitute a significant health and professional challenge, the consequences of which may include reduced work quality, deterioration of professional well-being, and in extreme cases, even temporary or permanent incapacity to perform their profession. The study results indicate the need to implement systemic preventive measures, including education on vocal hygiene, voice emission techniques, and ways to use the voice economically in teaching. It seems particularly important to incorporate these issues into both initial teacher education and ongoing professional development, which could contribute to reducing the risk of voice disorders and improving work comfort in this professional group. In the light of the study outcomes, it also seems justified to develop preventive programs that include regular diagnostics of the voice system, specialist consultations, and activities supporting teachers in the conscious and safe use of their voice as a fundamental tool in their professional work.

References

- Crandell, C., & Smaldino, J. (2000). An update of classroom acoustics for children with hearing impairment. *Language, Speech, and Hearing Services in Schools*, 31(4), 362–370. <https://doi.org/10.1044/0161-1461.3104.362>
- de Medeiros, A. M., Barreto, S. M., & Assunção, A. Á. (2008). Voice disorders (dysphonia) in public school female teachers working in Belo Horizonte: Prevalence and associated factors. *Journal of Voice*, 22(6), 676–687. <https://doi.org/10.1016/j.jvoice.2007.03.008>
- Guzy, A. (2019). Wybrane czynniki psychospołeczne a występowanie trudności głosowych wśród nauczycieli [Selected psychosocial factors and the occurrence of voice problems among teachers]. *Logopedia Silesiana*, 8, 274–297. <https://doi.org/10.31261/LOGOPEDIASILESIANA.2019.08.13>
- Hamerlińska, A. (2021). Niepełnosprawność głosu u nauczycieli: Raport z badań [Voice disability in teachers: Research report]. *Logopaedica Lodziensia*, 5, 59–68. <https://doi.org/10.18778/2544-7238.05.04>
- Kataryńczuk-Mania, L. (2014). Emisja głosu w pracy nauczyciela edukacji wczesnoszkolnej – istotne wątki [Voice emission in early school education teachers' work – key aspects]. In I. Kopaczyńska, M. Magda-Adamowicz, & M. Nyczaj-Draż (Eds.), *Pedagogika wczesnoszkolna: Uczeń i nauczyciel w zmieniającej się przestrzeni społecznej* (Vol. 2, pp. 144–154). Wydawnictwo Adam Marszałek.
- Kataryńczuk-Mania, L. (2020). Głos jako medium: Zacznij od emisji głosu... [Voice as a medium: Start with voice emission...]. In L. Kataryńczuk-Mania (Ed.), *Emisja głosu w przestrzeni edukacyjnej, artystycznej i terapeutycznej* (pp. 13–34). Uniwersytet Zielonogórski.
- Kisiel, M. (2012). *Emisja i higiena głosu w pracy dydaktyczno-wychowawczej nauczyciela* [Voice emission and hygiene in teachers' educational work]. Wydawnictwo Wyższej Szkoły Biznesu w Dąbrowie Górniczej.
- Kisiel, M. (2020). Przygotowanie przyszłych nauczycieli do wzmożonej aktywności głosowej w pracy dydaktyczno-wychowawczej [Preparing future teachers for increased vocal activity in educational work]. In L. Kataryńczuk-Mania (Ed.), *Emisja głosu w przestrzeni edukacyjnej, artystycznej i terapeutycznej* (pp. 35–50). Uniwersytet Zielonogórski.
- Majzner, R. (2020). Odżywianie a emisja głosu mówionego i śpiewanego nauczycieli wczesniej edukacji [Nutrition and the emission of spoken and sung voice of early education teachers]. *Edukacja Elementarna w Teorii i Praktyce*, 15(4/58), 39–51. <https://doi.org/10.35765/eetp.2020.1558.03>
- Majzner, R. (2024). Profilaktyka zaburzeń czynnościowych narządu głosu w kontekście specyfiki pracy nauczyciela edukacji elementarnej [Prevention of functional disorders of the voice organ in the context of the specific work of an elemen-

- tary education teacher]. *Wychowanie w Rodzinie*, 31(2), 219–233. <https://doi.org/10.61905/wwr/194602>
- Munier, C., & Kinsella, R. (2008). The prevalence and impact of voice problems in primary school teachers. *Occupational Medicine*, 58(2), 74–76. <https://doi.org/10.1093/occmed/kqm104>
- Niebudek-Bogusz, E. (2009). Occupational dysphonia management in different countries of the European Union and throughout the world. *Medycyna Pracy*, 60(2), 151–158.
- Plusajska-Otto, A. (2017). *Podręcznik pracy głosem* [Voice work handbook]. Wydawnictwo Uniwersytetu Łódzkiego.
- Sinkiewicz, A. (2011). *Kompleksowa ocena skuteczności ćwiczeń emisji głosu w profilaktyce zaburzeń głosu* [Comprehensive evaluation of the effectiveness of voice emission exercises in voice disorder prevention]. Wydawnictwo Naukowe Uniwersytetu Medycznego w Poznaniu.
- Śliwińska-Kowalska, M., & Niebudek-Bogusz, E. (1999). *Głos narzędziem pracy: Poradnik dla nauczycieli* [Voice as a work tool. A handbook for teachers]. Instytut Medycyny Pracy.
- Śliwińska-Kowalska, M., Niebudek-Bogusz, E., Fiszer, M., Łoś-Spychalska, T., Kotyło, P., Sznurowska-Przygocka, B., & Modrzeska, M. (2006). The prevalence and risk factors for occupational voice disorders in teachers. *Folia Phoniatrica et Logopaedica*, 58(2), 85–101. <https://doi.org/10.1159/000089610>
- Świątkowska, B., & Hanke, W. (2024). *Choroby zawodowe w Polsce w 2023 roku* [Occupational diseases in Poland in 2023]. Instytut Medycyny Pracy.
- Ubbillos, S., Centeno, J., Ibañez, J., & Iraurgi, I. (2015). Protective and risk factors associated with voice strain among teachers in Castile and León, Spain: Recommendations for voice training. *Journal of Voice*, 29(2), 261–266. <https://doi.org/10.1016/j.jvoice.2014.08.005>
- Walencik-Topiłko, A. (2009). *Głos jako narzędzie: Materiały do ćwiczeń emisji głosu dla osób pracujących głosem i nad głosem* [Voice as a tool: Exercise materials for voice emission for professional voice users]. Wydawnictwo Harmonia.

