

The Effectiveness of Relaxation Method on Voice Problems in Elementary School Teachers in Grogol District, Sukoharjo

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Abstract

Teachers are a profession that heavily relies on vocal ability and therefore face a high risk of voice disorders due to excessive or inappropriate voice use and high vocal demands, which may lead to laryngeal muscle tension from vocal hyperfunction that disrupts speaking comfort and reduces teaching effectiveness, making the relaxation method a relevant therapeutic approach to reduce muscle tension and improve voice quality. This study aims to determine the effectiveness of the relaxation method in addressing voice problems among elementary school teachers in Grogol District, Sukoharjo. The study used a quantitative approach with a one-group pre-test post-test experimental design, comparing voice conditions before and after intervention. Sampling was conducted through purposive sampling, involving 18 teacher respondents from SD Negeri Madegondo 1, SD Negeri Grogol 2, and SD IT Darul Falah, who met the criteria of experiencing voice problems. Data were analyzed univariately and bivariately using the Wilcoxon Signed-Rank Test to determine changes in the level of voice disorders after the intervention was administered. The research results showed a $Z\text{-value} = -3.732^b$ and $p = 0.000$ ($p < 0.05$), indicating that the relaxation method is proven effective for voice problems in elementary school teachers in Grogol District, Sukoharjo. These findings suggest that relaxation method can be recommended as an intervention approach to maintain teacher's vocal health, support sustainable vocal performance, and ultimately improve the effectiveness and quality of the teaching-learning process.

Keywords: teachers, relaxation method, voice problems

INTRODUCTION

Teachers hold a central role in educational success because they are responsible for conveying knowledge, guiding students, and creating a conducive learning environment, making their professional efforts essential to students' academic progress. This idea is supported by previous studies which state that teachers' roles significantly influence students' learning outcomes (Winarsieh & Rizqiyah, 2020; Safitri & Sukartono, 2023). One critical yet often overlooked aspect of teaching effectiveness is vocal quality. Voice is the main instrument that enables teachers to convey ideas, concepts, instructions, and knowledge clearly and effectively to students. When vocal function is compromised, the learning process can be hampered and educational goals become difficult to achieve (Anggraini et al., 2025). Elementary school teachers face significantly higher vocal demands compared to other professions, as they work in dynamic, noisy environments and must interact with students for extended periods every day (Meier & Beushausen, 2019). This reliance on vocal function becomes particularly challenging when combined with the demanding workload faced by teachers.

Teacher's workloads, as regulated by Government Regulation Number 19 of 2017 article 52 paragraph 2, which stipulates that teachers have a minimum face-to-face obligation of 24 hours and a maximum of 40 hours per week, resulting in prolonged and intensive voice use that substantially increases the risk of developing voice disorders. Previous research shows that teachers with a vocal workload of about 30 hours per week are at risk of experiencing voice health disorders (Martins et al., 2014). This occurs because voice becomes the primary tool used by teachers throughout the day, so excessive use or improper vocal techniques can lead to vocal fold disorders (Castillo-Allendes et al., 2023).

As a consequence of prolonged and intensive voice use, teachers are vulnerable to developing voice disorders. Voice disorders are defined as a condition in which an individual experiences changes in voice aspects such as pitch, loudness, and quality that can disrupt daily communication (Toding, 2019). According to Boone et al. (2020), voice disorders are categorized into three groups: organic, neurogenic, and functional. Functional voice disorders most commonly experienced by teachers generally occur due to excessive or inappropriate voice use (vocal hyperfunction) causing tension in the laryngeal muscles. Shipley & McAfee (2021) stated that the two main causative factors of functional voice disorders are vocal abuse and vocal misuse. Vocal misuse includes habits such as speaking too loudly, speaking for extended periods without rest breaks, or using improper breathing techniques that can ultimately damage voice health (Malik & Kiyani, 2023).

This risk is evident in the high prevalence of voice disorders in teachers, both internationally and nationally, as shown by various studies. International and national studies consistently indicate that teachers experience a high prevalence of voice disorders, highlighting this issue as a significant occupational health concern. Research conducted in various countries has shown that prolonged professional voice use places teachers at increased risk of symptoms such as hoarseness, vocal fatigue, muscle tension, and reduced voice quality, which interfere with effective communication (Sathyanarayan et al., 2018; Niebudek-Bogusz et al., 2008). Similar patterns have been reported in Indonesia, where teachers frequently seek medical attention for voice-related complaints and commonly experience vocal fatigue, hoarseness, and temporary voice loss associated with daily teaching activities (Kadriyan 2007 in Jannah & Pratomo; Farahin &

Purnaningrum, 2023). Collectively, these findings confirm that teachers represent a professional group with a high risk of developing voice disorders.

Beyond its high prevalence, voice disorders among teachers have substantial consequences for the teaching–learning process. Teachers experiencing voice disorders often struggle to speak for extended periods, experience discomfort while teaching, and may even experience voice loss in certain situations. In the long term, voice disorders lead to teacher absenteeism, decrease work productivity, and negatively impact overall educational quality.

Therefore, strategies or interventions are needed to address vocal problems in teachers, particularly those of a functional nature. One technique considered effective in overcoming vocal tension is the relaxation method. Boone et al. (2020) noted that the relaxation method is a component of voice therapy designed to alleviate tension in the muscles involved in voice production, including those in the neck, shoulder, and vocal folds. Tension in these areas often becomes the primary trigger for hoarseness, rapid fatigue, and difficulties with phonation. Through relaxation exercises such as head rotation, loosening of the throat muscles, and gentle breathing exercises, clients can restore their muscle conditions to normal positions and reduce hyper functional voice use habits.

Beyond its physiological mechanisms, the relaxation method also offers practical advantages that are particularly relevant for teachers. It is easy to implement and fits well into a teacher's busy schedule, as it requires no special equipment, can be done in a short time, and can be tailored to individual needs. Beyond its physical benefits, this method also helps regulate stress, which is known to exacerbate vocal muscle tension and contribute to functional voice disorders (Warsono et al., 2019). Previous studies have demonstrated that relaxation techniques effectively improve voice quality by reducing excessive muscle tension and enhancing body awareness in individuals with functional vocal disorders Duffy (2018). However, most existing research has focused on student populations or clinical settings, leaving limited empirical evidence regarding the effectiveness of the relaxation method specifically for elementary school teachers, who experience greater and more sustained vocal demands. Therefore, this study aims to examine the effectiveness of the relaxation method in reducing voice problems among elementary school teachers.

Similar conditions were also found in this research area, where several teachers in Grogol District reported complaints of rapid voice fatigue, hoarseness after teaching all day, and tension in the throat area. Akbar (2024) found similar voice problems in elementary school teachers in this region, although no significant relationship was identified between teaching duration and the risk of voice disorder. These results indicate that other factors, such as voice use techniques or vocal muscle tension, are likely the main causes of voice problems experienced by teachers. This finding underscores the need for interventions that specifically target muscle tension contributing to the development of voice disorders.

Despite the growing body of literature documenting the high prevalence of voice disorders among teachers and the associated occupational risk factors, research examining effective intervention strategies for this population remains limited. Most existing studies emphasize epidemiological findings or risk identification, with relatively little attention given to therapeutic approaches that directly address vocal hyperfunction and muscle tension, particularly among elementary school teachers. Moreover, empirical evidence regarding the application of relaxation method-based interventions in the

Indonesian educational context, especially in the Grogol District, Sukoharjo, is still scarce. Therefore, this study aims to investigate the effectiveness of the relaxation method in reducing voice problems among elementary school teachers, thereby providing evidence-based support for practical and accessible voice health interventions for professional voice users.

METHOD

This study employed a quantitative approach using a quasi-experimental design with a one-group pre-test–post-test model to examine changes in teacher's voice conditions before and after the relaxation method intervention. The study was conducted in three elementary schools in Grogol District, Sukoharjo Regency including SD Negeri Madegondo 1, SD Negeri Grogol 2, and SD IT Darul Falah.

Participants were selected using purposive sampling based on a preliminary screening of teachers who reported voice problems. The inclusion criteria in this study include: 1) teachers experiencing voice tension, 2) teachers experiencing hoarseness, and 3) teachers willing to be respondents. The exclusion criteria in this study were: 1) teachers unable to attend due to illness, 2) teachers not experiencing voice problems, 3) teachers unwilling to be respondents, and 4) teachers withdrawing from the study. From the initial screening, a total of 18 elementary school teachers met the criteria and completed all stages of the study, forming the final sample.

The research instrument used in this study was a voice problem questionnaire. This questionnaire was adapted from the GRBAS method according to Pink et al. in Gunawan et al. (2022). This instrument has undergone validity and reliability testing by Forzachita and Gunawan (2024). The validity test results showed that all items had *r*-calculated values greater than *r*-table (0.361), so each question item was declared valid. The Cronbach's Alpha value of 0.769 indicates that this instrument is reliable and consistent for measuring voice conditions. The questionnaire consists of 5 question items assessing symptoms such as hoarseness, tension when speaking, vocal fatigue, throat discomfort, and voice quality when teaching. Each item has four answer choices: a = never, b = rarely, c = sometimes, and d = often.

The scores are categorized on a scale of 0-3 per item, so the total score for five questions ranges from 0 to 15. This category enables researchers to describe the severity level of voice disorders before and after intervention, with the following interpretation: a score of 0 indicates no disorder, scores 1-5 indicate a mild voice disorder, scores 6-10 indicate a moderate voice disorder, and scores 11-15 indicate a severe voice disorder.

The data collection procedure consisted of three stages: pre-test, intervention, and post-test. The pre-test was conducted to assess baseline voice conditions prior to intervention. Before the completion of the study, researchers provided explanations regarding the purpose of the measurement, procedures for completing the questionnaire, and ensured that each respondent understood the instructions correctly and consistently. This approach was taken to ensure that the collected data accurately represent the respondent's voice conditions at the initial stage of the study. The intervention involved the relaxation method administered over nine sessions, conducted three times per week, and included breathing exercises and relaxation of the neck, shoulder, and speech-related muscles. After completing all intervention sessions, a post-test was administered using the same questionnaire to evaluate changes in voice conditions.

Data were analyzed using the Wilcoxon Signed-Rank Test, a non-parametric statistical test appropriate for ordinal data derived from two related measurements, to

determine whether there were significant differences in voice conditions before and after the intervention. This study received ethical approval from the Research Ethics Commission of Universitas 'Aisyiyah Surakarta (No. 648/X/AUEC/2025).

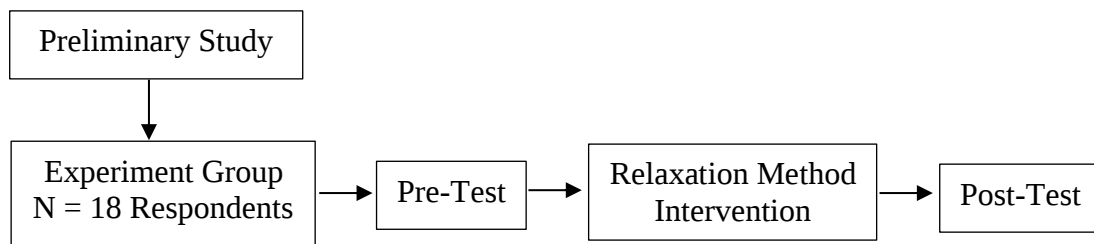


Figure 1. Research Design Framework

FINDINGS AND DISCUSSION

Findings

Research Location Description

This research was conducted in three elementary schools in Grogol District, Sukoharjo, namely SD Negeri Madegondo 1, SD Negeri Grogol 2, and SD IT Darul Falah. SD Negeri Madegondo 1 has 335 students and 22 teachers, including 6 male and 16 female. SD Negeri Grogol 2 has a smaller student body, comprising 57 students, and is staffed by 11 teachers, including 3 male and 8 female. Meanwhile, SD IT Darul Falah is a school with the largest number of students, namely 520 students, and is supported by 29 teachers, including 8 male and 21 female. These three schools were selected because they were deemed capable of representing the variety of educational contexts, differences in teacher's vocal burden, and daily voice use conditions, making them relevant for describing voice problems in elementary school teachers in Grogol District more comprehensively.

Respondent Characteristic

Table 1. Frequency Distribution of Respondent Characteristics

Variable	Frequency (f)	Percentage (%)
Gender		
Male	2	11.1
Female	16	88.9
Age		
25-31 years	8	44.4
32-38 years	2	11.1
39-45 years	3	16.7
46-52 years	4	22.2
53-59 years	1	5.6
Teaching Duration/Week		
24 hours	4	22.2
30 hours	8	44.4
36 hours	2	11.1
42 hours	3	16.7
48 hours	1	5.6

Based on Table 1, respondent characteristics show that the majority of research respondents are female teachers (88.9%), indicating that voice problems were predominantly reported among women in this study. In terms of age, most respondents were in the early to middle adulthood range, particularly those aged 25–31 years (44.4%), followed by teachers in the 46–52 years group (22.2%), reflecting that voice complaints occurred across productive teaching ages. Regarding teaching duration, most respondents had a relatively high weekly teaching load, with the largest proportion teaching around 30 hours per week (44.4%), suggesting substantial vocal demands as part of their professional responsibilities. Overall, these characteristics indicate that the respondents represent active elementary school teachers with considerable vocal workloads, which may increase their susceptibility to voice problems and justify the need for targeted voice health interventions.

Voice Problem Description before Intervention

Table 2. Voice Problem Description before Intervention
Based on Severity Level

Pre-Test	Frequency (f)	Percentage (%)
Mild Voice Disorder	3	16.7
Moderate Voice Disorder	13	72.2
Severe Voice Disorder	2	11.1
Total	18	100.0

Table 2 indicates that, prior to the intervention, the majority of respondents experienced voice problems at a moderate severity level (72.2%), showing that most teachers already had noticeable vocal difficulties before receiving any treatment. This distribution reflects that voice problems among elementary school teachers were not merely occasional or minor, but had reached a level that could potentially interfere with teaching performance. These baseline findings emphasize the need for therapeutic intervention, particularly to prevent the progression of moderate voice disorders into more severe conditions and to support teachers in maintaining functional vocal performance during instructional activities.

Then, respondents were given an intervention using the relaxation method, consisting of 9 meetings, with a frequency of three sessions per week, each lasting 30 minutes. After the prescribed intervention sessions were fully completed, a post-test assessment was administered to determine whether the voice problem condition had improved or remained unchanged after the intervention.

Voice Problem Description After Intervention

Table 3. Voice Problem Description after Intervention
Based on Severity Level

Post-Test	Frequency (f)	Percentage (%)
No Voice Disorder	5	27.8
Mild Voice Disorder	12	66.7
Moderate Voice Disorder	1	5.6
Total	18	100.0

Table 3 shows a clear improvement in respondent's voice conditions after the intervention. After receiving the relaxation method, 66.7% respondents were classified as having only mild voice disorders, while a considerable proportion no longer showed any voice disorder at all. No respondents were classified as having severe voice disorders after the intervention. This shift in severity distribution indicates that the relaxation method contributed to a meaningful reduction in voice problem severity, demonstrating its effectiveness in improving vocal conditions among elementary school teachers.

Comparison Description of Voice Problems Before and After Intervention

Table 4. Comparison Description of Voice Problems before and after Intervention

Result	N	Min	Max	Mean	Difference	SD
Pre-test	18	2	4	2.94	1.16	0.539
Post-test	18	1	3	1.78		0.548

Based on Table 4, the comparison of respondent's voice problems before and after the intervention is known, the average score for voice problems decreased from 2.94 to 1.78, resulting in a mean score difference of 1.16. Before intervention, the minimum voice problem score was 2 and the maximum was 4, indicating that all respondents experienced voice disorders with severity levels ranging from mild to severe. After intervention, the minimum score decreased to 1, and the maximum score to 3, indicating that some respondents no longer exhibited voice disorder symptoms, and none were at the severe severity level. Overall, the results support the effectiveness of the relaxation method in reducing voice problems among elementary school teachers.

Table 5. Wilcoxon Signed Rank Test Results

Variable	Z-Value	P-Value
Voice problems before intervention	-3.732 ^b	0.000
Voice problems after intervention		

Based on Table 5, the analysis results using the Wilcoxon signed rank test showed a $Z\text{-value} = -3.732^b$ and $p\text{-value (Sig.)} = 0.000$, where $p < 0.05$. Thus, a statistically significant change in the severity of voice problems was observed between the pre- and post-intervention periods. The research results indicate that the relaxation method intervention is effective in addressing voice problems among elementary school teachers in Grogol District, Sukoharjo.

Discussion

This study aimed to evaluate the effectiveness of the relaxation method in reducing voice problems among elementary school teachers in Sukoharjo. The findings indicate a significant improvement in teacher's vocal conditions following the intervention, demonstrating that the relaxation method is effective in addressing functional voice problems in this population. These results confirm that targeted relaxation-based

interventions can reduce vocal tension and alleviate symptoms associated with intensive occupational voice use among teachers.

Factors Contributing to Voice Problems in Teachers

Pre-test results indicate that teachers are a professional group at high risk for experiencing voice problems, particularly functional voice disorders. Akbar (2024) in his research found voice problems in several teachers at Madegondo 1 Public Elementary School, Grogol 2 Public Elementary School, and Darul Falah Islamic Elementary School in Grogol District, Sukoharjo, where at least 2-6 teachers per month experienced hoarseness. This condition is influenced by several interrelated factors, including high vocal demands, long teaching hours, limited vocal rest, and intensive daily voice use. Respondents had a six-day work week, with weekly teaching hours ranging from 24 to 48 hours, or approximately 5-6 hours per day. Meanwhile, the operating hours of the schools where the respondents taught were from 7:00 a.m. to 2:00 p.m. WIB for public schools, and from 7:00 a.m. to 3:30 p.m. WIB for private schools. Each school inherently has a different teaching schedule and duration requirements, so teacher's voice usage also varies (Jannah dan Pratomo, 2023).

Teacher's teaching hours are regulated by Law No. 14 of 2005 and Government Regulation No. 74 of 2008, Article 15, paragraph (3), which states that teachers are required to meet a minimum teaching load of 24 hours of face-to-face instruction per week and can teach up to 40 hours, which places continuous stress on the vocal tract. Consistent with previous research, intensive and prolonged voice use increases the risk of vocal abuse and vocal hyperfunction, which cause symptoms such as hoarseness, vocal fatigue, and throat discomfort (Mattiske et al., 1998; Martins et al., 2014; Couch et al., 2015).

Respondent characteristics further support this risk profile. The majority of participants were female, a group shown to be more susceptible to voice disorders due to anatomical and physiological differences in vocal cord structure and habitual voice usage patterns (Jardim et al., 2007). Respondents were aged between 25 and 59. Although respondents spanned a wide age range, physiological changes affecting vocal cord tissue can begin as early as 30–45 years, increasing susceptibility to voice problems even among relatively younger teachers (Dewi, 2021). These combined factors help explain the varying levels of voice problems observed before the intervention.

Based on pre-test results, factors that increased the risk of voice problems included intense school hours, long teaching duration, a predominance of female teachers, and age. Initial findings regarding teacher's voice problems before the intervention indicated that high vocal load, uncontrolled voice use patterns, and limited rest time had created a persistent state of vocal hyperfunction. This situation was further exacerbated by individual factors such as gender and age, which also increase susceptibility to voice disorders.

When related to Boone et al. (2020) theory, which emphasizes that hyper functional conditions cause voice muscles to work excessively, causing tension in the vocal folds and triggering symptoms such as hoarseness, tension, and rapid voice fatigue. The relaxation method directly targets tension in the neck, shoulder, and laryngeal muscles, thereby reducing vocal hyperfunction and improving phonatory efficiency. By restoring muscle balance and reducing excessive effort during phonation, the relaxation method addresses the root mechanism underlying functional voice problems.

Effectiveness of the Relaxation Method

After the relaxation method intervention was administered over nine sessions, post-test results demonstrated a clear improvement in teacher's voice conditions. A substantial reduction in the average voice problem score was observed from pre-intervention to post-intervention, indicating a shift toward milder symptoms and overall improvement in vocal health. The decrease in both minimum and maximum scores further suggests that the severity of voice problems was reduced following the intervention.

Statistical analysis using the Wilcoxon Signed-Rank Test confirmed that this improvement was significant. The test results indicate a meaningful difference between pre- and post-intervention voice problem scores, demonstrating that the observed changes were attributable to the relaxation method rather than chance. These findings support the effectiveness of the relaxation method in reducing the severity of voice problems among elementary school teachers in Sukoharjo.

The intervention was conducted with frequency and duration appropriate to the Regulation of the Minister of Health of the Republic of Indonesia Number 81 of 2014 regarding Speech Therapy Service Standards, which stipulates that therapy sessions are conducted 1-6 sessions per week and last for 30-60 minutes. This is also in line with research by Fujiki & Thibeault (2023) which mentioned that voice disorder patients on average require 5.32 therapy sessions until voice conditions improve, so the recommendation of about six intervention sessions can be used as a guideline for clinicians in planning therapy. After implementing the relaxation method with three sessions per week and a duration of 30 minutes per session, results showed improvement in voice conditions among respondents. The decrease in post-test scores compared to pre-test scores indicates that the voice problems experienced by respondents improved after receiving the intervention. This consistency enhances the effectiveness of the relaxation method as a viable intervention in speech therapy practice.

Comparison with Previous Studies

The results of this study are consistent with previous research demonstrating the effectiveness of relaxation methods in managing vocal dysfunction. The application of relaxation methods works by reducing tension in the muscles involved in voice production, thereby reducing symptoms of tension and hoarseness associated with vocal hyperfunction. This is consistent with Wilson in Boone et al. (2020), who stated that relaxation methods are one of the therapeutic techniques aimed at addressing hoarseness and vocal tension during speaking. These findings are reinforced by research by (Duffy, 2018), which describes individuals who rely on their voices professionally are prone to developing vocal problems due to excessive use of their voices, which results in symptoms such as hoarseness, tension, dry throat, and shortness of breath. Furthermore, relaxation methods are effective in improving overall vocal quality and reducing vocal tension. In this study, teachers with longer teaching duration still showed improvements in voice condition after receiving intervention using relaxation methods, indicating that this method can provide benefits despite high daily vocal demands.

Research by Bartecki & Strojek (2025) confirmed that the relaxation method is an important component in therapy as well as the prevention of voice disorders. Various studies have shown that relaxation techniques effectively reduce voice disorders caused by excessive voice use and play a role in preventive efforts, especially for those who rely heavily on their voice in their professional roles, such as teachers who are more susceptible to voice disorders due to intense voice demands. This is in line with research

by Kęder & Badurek (2024) which assessed the effectiveness of combining multiple techniques, including relaxation exercises, Mathieson laryngeal manual therapy, and lax vox exercises, in voice therapy for patients with muscle tension dysphonia conditions. Survey results show 80% of patients showed voice improvement after undergoing therapy. This is also supported by research by Niebudek-Bogusz et al. (2008) which explored how effective voice therapy through a combination of several techniques, such as relaxation exercises, breathing exercises, vocal function exercises, resonant improvement exercises, and carryover exercises, applied to female teachers with hyper functional vocal problems. The research results showed that voice therapy effectively improves both voice quality and vocal disorders in teachers.

Overall, the findings of this study confirm that the relaxation method is effective on voice problems among elementary school teachers in Grogol District, Sukoharjo. By addressing vocal muscle tension as a primary contributor to functional voice disorders, this intervention offers a practical and evidence-based approach for maintaining teacher's vocal health. These results directly answer the research question and support the integration of relaxation techniques into voice therapy and preventive programs for teachers.

CONCLUSION

Based on the interpretation and elaboration of the research results on the effectiveness of the relaxation method in addressing voice problems among elementary school teachers in Grogol District, Sukoharjo, it can be concluded that the relaxation method intervention has a significant positive impact on reducing the severity level of voice disorders in the respondents. Prior to the intervention, teachers experienced voice problems ranging from mild to severe levels, however, after completing the relaxation sessions, a clear improvement was observed, marked by a shift toward milder symptoms and the absence of severe cases. The Wilcoxon Signed-Rank Test confirmed the effectiveness of the relaxation method in addressing teacher's voice problems. The relaxation method intervention benefits teacher's vocal health while also enhancing the quality of teaching and learning. This study contributes scientifically to the field of speech therapy and offers practical implications for the education sector, as the method is simple and easy to implement. By maintaining vocal health and increasing teaching comfort, this intervention supports more effective learning processes and the achievement of broader educational goals.

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