

Perceptions and Practices of Vocal Warm-Up Exercises among School Teachers–A Survey

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Purpose: Occupational vocal demands have been identified to exacerbate vocal issues. Vocal warm-up exercises are strongly believed to help in the prevention of vocal fold damage in professional voice users. The study intended to recognize the perceptions and practices of vocal warm-up exercises among school teachers.

Methods: A cross-sectional study design involving sixty primary school teachers working in the Kancheepuram District was adopted. A 30-item questionnaire containing questions related to demographic details, teaching habits, and vocal warm-up exercises, practice of vocal hygiene, and perceptions about the importance and effects of vocal warm-up on their voice ability was developed. The questionnaire was content validated by three Speech-Language Pathologists with more than 5 years of experience. Thus, a survey was conducted using the final set of questionnaires.

Results: 37% of the teachers had voice problems whereas 30% reported having inconsistent voice issues. 55% have reported practicing breathing exercises as a part of a warm-up for their voice usage. 36% were found to be unaware of any types of exercises or practice of warm-up exercises for voice usage. However, all the subjects accepted the importance of vocal warm-up and hygiene practices to preserve their voice quality.

Conclusions: Thus, the findings of the current study will help to create awareness of the importance of voice quality, vocal warm-up, and hygiene practices. It will assist in providing counselling and vocal rehabilitation among professional voice users like teachers.

Keywords: Vocal warm up exercise, School teachers, Voice symptoms, Practice, Survey



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INTRODUCTION

Multifactors involving biological, structural, physiological, and psychosocial aspects contribute to the production of voice. Hence, alteration in any of these mechanisms may lead to vocal changes. The causes of voice problems can therefore be multifactorial. A clear and well-functioning voice is an important requisite for professional voice users. When the voice does not fulfill the needs of the speaker or when it is inadequate, it endangers the very subsistence of the professional. Among professional voice users, teachers and singers have been widely reported with higher frequencies of voice problems. Occupational vocal demands have been identified to trigger voice problems or exacerbate the vocal issues among teachers.

Among school teachers the prevalence of voice disorders reported was around 45.4%

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in a district in south India and also reported that problems were experienced during the duration of their teaching career with a record of 70.1% [1]. A cross-sectional study conducted by Joshi et al. reported a prevalence of voice disorders in the Indian female secondary school teacher population as 18.5%. Factors such as age group between 41-60 years, chronic and or recurrent respiratory allergies, comorbid medical conditions related to the neurological and or endocrinal system, any other constitutional symptoms, increased number of years of teaching, and several lecture hours per week were found to be significant risks in the causation of voice disorders among teachers [2]. Particularly, diseases in the upper respiratory tract were found as the foremost factor causing voice disorders and teachers with recurrent upper respiratory tract infections were reported to have greater risk of voice disorders. As a result of altered breathing and phonatory mechanisms, speech outcomes are affected [3].

Sundaram et al. [4] stated that the prevalence of dysphonia was 7.9% among Malaysian primary school teachers. This cross-sectional study conducted among 331 teachers from eight primary schools identified that hours of teaching per week and the number of children in a classroom (greater than 4 children) were significantly associated with dysphonia. Teachers' unergonomic postures during class teaching were strongly associated with voice problems exhibiting strained voice, decreased vocal endurance, and vocal fatigue [5]. Various literature in India shows prior sensitization of teachers regarding voice use, and voice projection through traditional methods emphasizing posture, breath management, and awareness programs on proper voice use [6]. Also, the use of voice hygiene programs had a positive effect on the quality of life of teachers both from the psycho-emotional aspects as well as the physical aspect of voice. A study using an eclectic voice therapy program for the treatment of hyperfunctional voice disorders described that pictorial illustrations, feedback, and monitoring sheets were useful in learning the exercises and demonstrating significant changes in vocal fold movement patterns, reduction in ventricular hyperadduction, overall grade of voice quality, DSI and VFI-T [7].

Voice disorder can be triggered or intensified by an occupational vocal demand. Hence, it is essential for professional voice users such as teachers to be educated regarding the vocal health practices (hygiene and/or exercises) that improve the voice production [8]. Vocal warm-up exercises have been clinically proven to meet the demand of the professionals voice usage which has been reflected in the voice parameters

such as the Dysphonia severity index. Vocal warm-up exercises are believed and established to prepare the vocal mechanism connecting with the body and thought for voice usage throughout the day for any strenuous activity, thus protecting the voice production mechanism from injury [9]. Heurer et al., stated that the warm-up is essential in voice training preparing them for the vocal demands, especially in professional voice users. It is also expected to increase blood flow to the vocal folds and help the proper functioning of the muscle viscosity to maintain its function. The effect of vocal warm-up exercises has also improved phonation threshold pressure (PTP) [8-10].

Although vocal warm-up exercises are widely recognized as an effective preventive measure for vocal health, there is a noticeable gap in their use among school teachers. Vocal warm-ups are known to increase vocal fold flexibility, improve voice quality, and reduce the risk of phonotrauma, yet little is known about teachers' awareness of these practices, the extent to which they incorporate them into their daily routines, and the perceived benefits [11,12]. Factors such as high prevalence of vocal problems in teachers, lack of awareness and training, limited research on teacher-specific practices, vocal health impacts teaching effectiveness, barrier identification to the adoption of vocal warm-up exercises accentuate the need for the current research. Hence, as a preliminary step this study aims to fill this gap by identifying teachers' awareness, perceptions, and actual practices of vocal warm-up exercises. The findings from this study will be valuable for educators, speech-language pathologists, and school administrators, as they highlight the importance of vocal care in maintaining teachers' vocal health and preventing long-term voice disorders. This research will provide critical insights into the existing gaps in practice and awareness and offer recommendations for promoting vocal health through simple, accessible interventions like vocal warm-up exercises.

Aim of the study

The primary aim of the study was to determine the perceptions and practices of vocal warm-up exercises among school teachers using a survey.

METHODS

A cross-sectional study was conducted using a questionnaire-based survey method to identify the perception and practices of vocal health care among school teachers in the Kancheep-

uram district. This study was presented to and approved by the Institutional Ethical Committee given reference number 3094/IEC/2022. All participants provided informed consent to the use of their responses for current research. The current research involved two phases. Phase I consisted of the development and validation of a questionnaire on practices and perceptions towards vocal health care. Phase II included a survey among school teachers using the developed questionnaire.

Phase I-Development and validation of the questionnaire

A questionnaire focusing on the perception and practices of vocal health regimes among school teachers was developed in English based on previous research and literature on teachers in the Indian scenario. The development process of this questionnaire was aimed at gathering comprehensive data on the perceptions, practices, and voice-related challenges faced by school teachers, particularly regarding vocal hygiene and warm-up exercises. The questionnaire was divided into several sections, each targeting specific aspects of voice usage and health. The questionnaire composed of several key components focusing on demographic details, teaching profile, lifestyle factors, classroom environment, vocal behaviors (frequency and type of voice problems, reflux symptoms, voice symptoms), perception of vocal hygiene and warm-up exercises (awareness, importance, and effects), and practices of vocal hygiene and warm-up exercises (frequency, types of exercises, duration, amplification devices, self-remedy). Thus, it contained total of 35 questions. Content validation was carried out for the developed questionnaire by three speech-language pathologists with over five years of experience exhibiting a special interest in voice disorders. Each item was rated on a four-point rating scale ranging from non-relevancy to most relevant. The content validity index showed a value greater than 0.76 using Cronbach's alpha scale indicating excellent content validity.

The final validated questionnaire comprised demographic details of the patient such as age, gender, years of teaching experience, type of working setup (government and private), lifestyle, voice-related problem, perception, and practices of any vocal hygiene and or any vocal warm-up exercises. Factors such as hours of teaching in a day, duration of voice break in working hours, adequate hydration, diet and lifestyle, nature of voice problem, reflex-related symptoms, and use of any traditional vocal treatment or strategies were also included. The section focusing on the perception of vocal warm-up practices emphasized mental focus, flexibility, sustainability,

and damage caused. Thus, the validated questionnaire was used during the pilot study (Appendix 1).

Phase II-Pilot study using survey

Phase II involved a pilot survey, where the questionnaire developed and validated in Phase I was distributed among teachers during the survey. Thus, the pilot study included 60 school teachers and all the participants completed the survey. The participants were included from schools in and around Kancheepuram districts. The teachers with history of medical conditions, diagnosed with voice problem or exposure to any voice therapy were excluded from the study. The survey was conducted both in online (Google form) and offline mode. The time taken for administration of the questionnaire was approximately 20 minutes. Informed consent was taken from each participant before administration of the questionnaire. Data were analyzed and documented in an Excel database. Qualitative and Quantitative analysis were carried out using the statistical program SPSS version 24. Hence, frequency analysis, descriptive statistics, and Chi-square (χ^2) tests of homogeneity were used to test the significance of distribution differences in voice warm up practices and perceptions questions among teachers with considering significant value as $p < 0.05$ to compare the categorical variables.

RESULTS

Sixty school teachers participated in the study, and all the participants completed the questionnaire. Therefore, 60 complete responses were used for data analysis. Sociodemographic characteristics details obtained from the questionnaire revealed majority of the participants were female teachers ($n = 54$). The mean age of the participants was 39.98 years and the standard deviation was 8.94 with minimum age of 24.00 and maximum age of 57.00. All the participants were aged between 25 to 55 years. For years of teaching experience, the distribution of participants found is provided in Table 1 below.

Among the 60 teachers, 85% were found to be working with primary school children and 15% were working with kindergarten with the majority 83.33% being placed in the private school sector and 16.67% in government school teachers. 85% of the teachers indulged in 5 hours of teaching and 15% less than 4 hours of classes in a day. It was recorded that around 83% of the teachers had breaks between classes and around 17% didn't have frequent breaks during class hours. Approx-

mately 98.4% did not have a report of alcohol or smoking habits. Concerning eating habits, 34.4% reported having a regular intake of spicy food whereas 62.3% did not take any spicy foods and 1.6% of participants did not respond to this section portraying missing data. The sleeping habits of the teachers were asked in detail as it might reflect on their stress and physical factors influencing the use of voice. It was demonstrated that 23% of teachers had a sleep duration of less than 6 hours, 62.3% had 6 to 7 hours of sleep duration and 11.5% had greater than 7 hours of sleep duration. Results also showed that the largest group of people (39.62%) drink between 1 to 1.4 liters of water per day, while a smaller percentage (5.66%) drink less than 1 liter, 20.75% drink between 1.5 to 1.9 liters and around 33.96% >2 liters. Ventilation in the classroom was reported to be satisfactory by 85% of the teachers and fair to poor by 15% of the teachers. Noise in the classroom was reported to be negligible by 16% of the teachers, 36% reported to be medium in the classroom and 7% of teachers reported to have high noise levels in the classroom environment which enable them to increase the amount of effort exhibited during teaching. 82% reported having a satisfactory temperature in the classroom and 18% reported a fair temperature in the classroom. When asked about the usage of chalk while teaching, 38% reported frequently, 25% sometimes, 8% never, and

28% always. During the survey, 41.7% of the teachers reported having voice problems during and after class hours, whereas 31.7% reported no voice problem and around 26.6% were not sure of their voice problem.

The study identified vocal behaviors that were affecting the teachers' usage of voice at work. Predominant voice characteristics reported to be present among 25% of the teachers were the use of effortful and strained voice followed by vocal fatigue (18%), voice change (16%) and 21.66% exhibited throat clearing and 21.66% had shown effortful voice during speaking and addressing children at the classroom. However, it was noticed that the majority of the teachers had reported no change in vocal symptoms with an increase in years of experience in teaching. Voice changes such as strained voice (61.66%), vocal fatigue (71.66%), voice change (73.33%), throat clearing (68.33%), and effortful voice (78.33%) were reported by teachers. It was also noticed that some teachers were not sure of their change in vocal characteristics like strained voice (13.33%), vocal fatigue (10%), voice change (10%), throat clearing (10%), and effortful voice (0%) indicating poor knowledge and awareness of vocal changes modifying their quality of life at workplace (Figure 1).

With the aim of the current research, the teachers were probed about their awareness and practice of vocal health practices or habits in their daily routine to preserve their voice. Therefore, the vocal health regime or habits practiced by teachers were characterized under sections warm-up exercises, diet modifications, conservative voice usage, complete voice rest, none of the above and or all the above, and no response. In the survey, it was discovered that around 85% of the study population did not follow any vocal health regime though they encountered voice changes daily. It is understood that approximately 15% of teachers reported practicing certain forms of health regime programs (Figure 2).

Table 1. Shows the distribution of participants (teachers) based on years of experience

Groups	Years of experience	Total number of participants (teachers) (n=60)
Group 1	<2	13
Group 2	2 to 5	12
Group 3	6 to 10	12
Group 4	>10	23

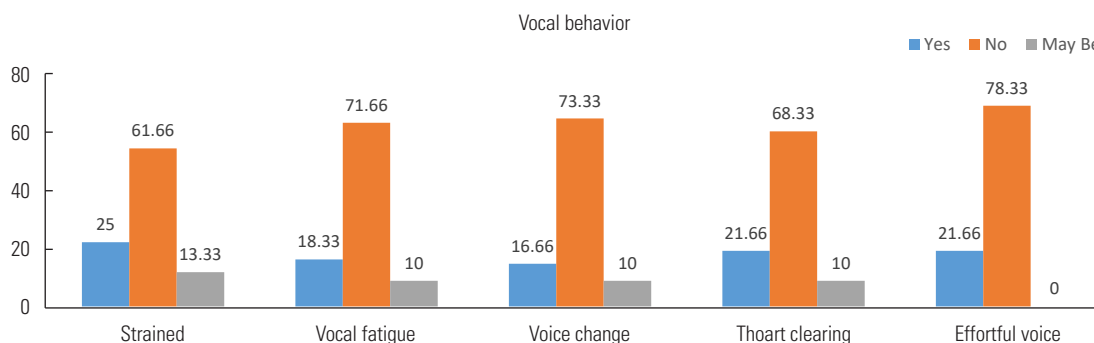


Figure 1. Voice characteristics experienced by classroom teachers.

From Figure 3, it can be acknowledged that only 1 respondent practiced vocal warm-up exercises, 4 respondents con-

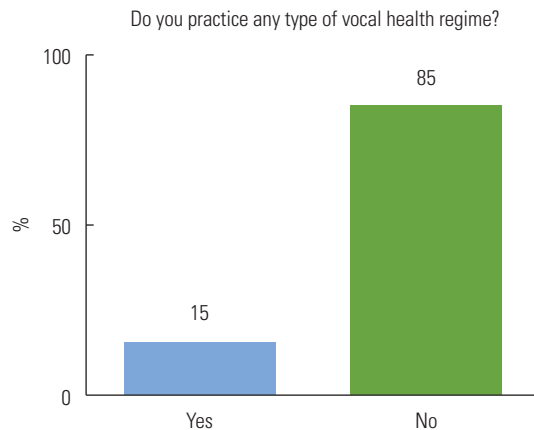


Figure 2. Voice health regime practiced by teachers.

sidered diet changes as a preventive measure, 1 respondent practiced conservative voice usage, no one reported practicing complete voice rest, 15 respondents, indicated no practice of these strategies, 3 respondents reported using all strategies and 36 respondents gave no response, reflecting a large number of teachers who are either unaware of or unengaged with vocal health practices.

On further exploration of the specific regime of health practiced as represented in Figure 4, it was found that warm-up exercises were highlighted by most teachers related to physical activity such as humming (11.66%), general aerobic exercises (7%), mental relaxation, and focused meditation (8%), muscle relaxation like face, neck, shoulders (11.66%), stretching exercises focusing on face, neck, and shoulders (15%) and postural alignment exercises (3.33%). This reflects the low awareness or understanding of the role posture plays in vocal

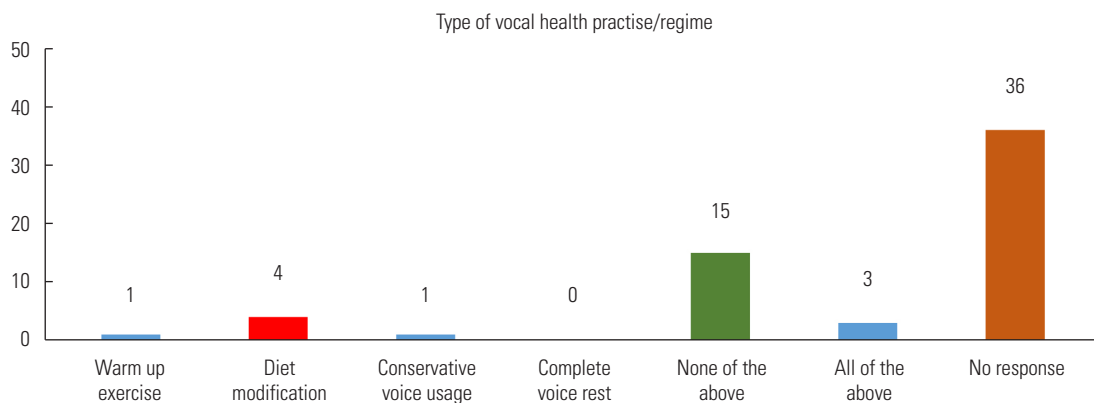


Figure 3. Type of vocal health practice by school teachers in general.

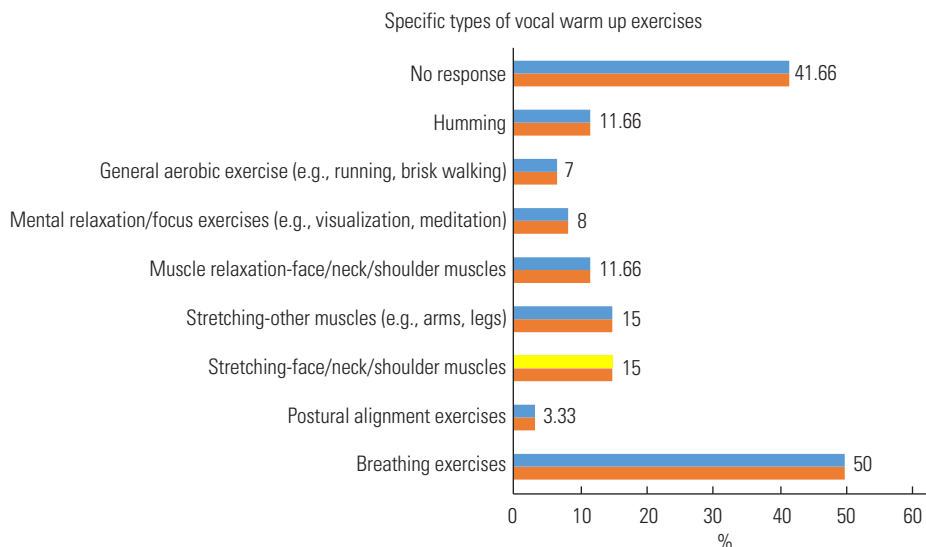


Figure 4. Specific type of vocal warm-up exercises practiced by school teachers.

efficiency, and moderate awareness about stretching exercises, muscle relaxation, and humming. Breathing exercises followed by 50% of the study population show that teachers are relatively aware of the importance of breath control in maintaining vocal health. Approximately 41.66% did not provide their responses again indicating a lack of engagement or awareness. Also when asked about self-remedy, 37% of the teachers reported following self-remedy such as traditional home remedies whereas 63% reported none.

Perceptions of warm-up exercises among school teachers were investigated (Figure 5). The study revealed that approximately 53% of the population did not have any opinion about vocal health warm exercises and their effect on vocal health or voice usage. 33.33% agreed that it helped to improve their focus, 40% agreed that it increased their confidence level during classroom practice, 41.76% agreed to have flexible voice usage, 40% agreed that the practice of warm-up exercises helped them to sustain their voice usage and 15% felt co-operative with their entire physical system.

Teachers who had frequent throat clearing and talking showed significant differences with voice change used their voice for longer hours and had more intake of water ($\chi^2 = 49.65$, $p = 0.05$). Years of teaching experience did not show a

statistically significant difference with voice change ($p = 0.522$). Hours of sleep duration showed a significant difference ($\chi^2 = 10.2$, $p = 0.05$) among the variables. However, there was no significant relationship between other factors such as hours of voice usage, quantity of water intake, physical activity, ventilation, temperature in the classroom, chalkboard practice, and noise factors. There was a significant difference noticed for the sustainability of voice and confidence level ($p < 0.05$) as shown in Table 2. However, other factors related to warm-up practices and perception did not show greater significant differences.

DISCUSSION

The present explored the frequency of voice problems and the perception of vocal health practices among school teachers. The current study mimics various literature reporting teachers with more years of experience exhibiting reduced severity of voice problems. This could be attributed to the factor of dealing with voice problems based on understanding and adaptive strategies by experienced teachers [13,14]. Vocal behavior symptoms reported by the teachers such as strained voice, vocal fatigue, voice change, throat clearing, and effortful

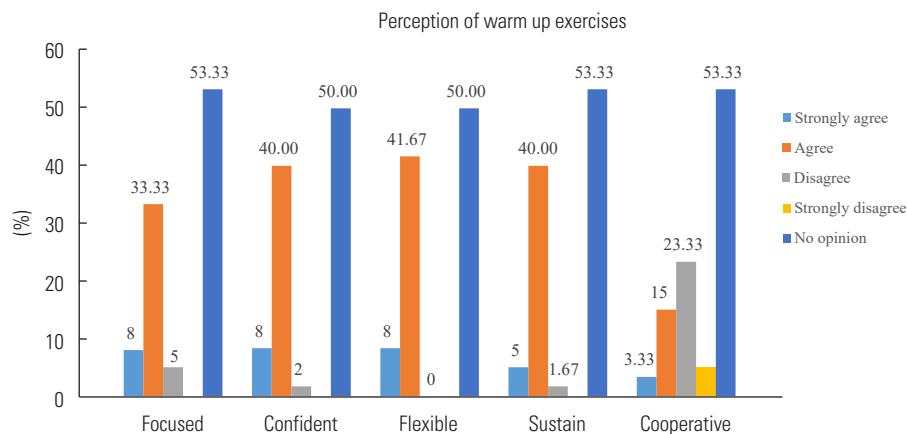


Figure 5. Perceptions of warm-up exercises among school teachers.

Table 2. Shows the vocal warm up perception questions with significant differences in for test statistics Chi-square (χ^2)

Questions	Test statistics Chi-square (χ^2)	degree of freedom (df)	p-value
Which part of the day you feel your voice problem is more-evening	5.80	1	0.016*
I feel more confident about my voice after I warm up	20.18	3	0.000*
My voice is more flexible after I warm up	15.85	2	0.000*
It is easier to sustain my voice after I warm up	19.07	3	0.000*

* $p < 0.05$ -significant difference.

voice could be due to disturbance or trauma of the phonatory system that the vocal cord can handle the tension due to vocal loading demand. Also, it's identified that the use of amplification devices has not been encouraged or in practice in the majority of schools in countries like India due to economic factors or provisions available at schools. Hence, teachers tend to increase their loudness causing damage to their vocal cords leading to voice problems as observed in the current study which is also supported by other researchers [15]. The present study also echoes the research conducted by de Sousa [16] implying the use of voice amplification using the microphone as a measure to reduce classroom noise which will aid to teachers' vocal health, use of whiteboards and markers pens instead of the traditional chalk and blackboard teaching method.

Environmental risk factors are more associated with voice symptoms among occupational voice disorders. Tähtinen et al. [17] reported that poor indoor air quality such as ventilation, contaminated or inadequate air, air pollutants, the temperature in the classroom, low humidity, poor acoustic properties of the classroom along with improper use of voice contribute to greater extend of phonotrauma of the vocal cords. This will influence the vibratory properties of the vocal folds or weaken the mucous layer of the respiratory tract altering the viscoelastic mechanism of the vocal fold mucosa [17,18]. The result represented in the present study is in synchronous with the research stated, however, inconsistent results have shown inconsistent voice symptoms [19]. Also, studies have shown that teachers are at high risk for voice disorders, with up to 50-80% of them reporting voice-related problems at some point in their careers [20]. The current study reinforces this, as teachers with over 15 years of experience demonstrated significantly more frequent and severe vocal issues.

Warm-up exercises are regularly practiced by sports persons. Similarly, vocal warm-up exercises such as postural exercises, cooling down, stretching, and relaxing have been practiced and adapted by professional voice users to benefit their pitch range, vocal projection, and theatric performances. Studies were conducted to see the effect of vocal warm-up practices on stage performers like singers and vocalists and stated that following warm-up exercises, the voice was perceived to be better by singers [21]. A study on warm up exercises reported that warm-up was important for beginners with having more impact on the psychological well-being of the performer rather than physiological benefits making them more confident for performance [22]. Similar results have

been obtained from the present research where teachers felt more confident and relaxed when practicing warm-up exercises regularly. It was also noticed that aerobic and other general exercises were practiced more than focusing primarily on vocal health believing that general physical activity will also aid in overall stress release reflecting on their quality of voice performance. The majority of teachers portrayed poor knowledge and awareness concerning vocal health practices and were unable to recall the nature and onset of voice problems which indicates the need for vocal health education at every grassroots level which is in harmony previous study [23]. The data suggests that teachers have some awareness of general vocal health strategies, particularly breathing exercises, but there is limited practice of comprehensive vocal warm-up routines that are essential for preventing voice disorders. The significant proportion of non-respondents and also who selected none of the above further indicates that a large number of teachers are not well-versed or aware of vocal health strategies. Thus, the result aligns with the study by Desai and Thakur [24] which focused on the need for vocal health awareness and prevention programs in Indian schools. The research showed that while teachers understood the importance of voice in their profession, most were unaware of specific preventive measures like vocal warm-up exercises. However, the practice of vocal warm-up exercises in the teacher population needs to be investigated intensively as very limited research is recognized.

Many teachers in the study were unaware of the onset and duration of voice problems. Teachers were found to self-treat their voice problem as they consider it as a natural process of their profession and don't seek help from medical or health care practitioners until they face a severe threat to their health or occupation.

Teachers with 1 to 5 years of experience exhibit the highest awareness of vocal warm-up exercises, likely due to recent training programs that emphasize the importance of vocal hygiene. This finding aligns with the increasing focus on vocal health in teacher training curricula over the past decade [25]. Also, these findings are consistent with studies that proactive approach to vocal health of newer professionals to adopt health-focused routines introduced during their training [26]. Teachers in their mid-career (6-10 years) begin to drop as teachers shift their focus toward career demands and other responsibilities. The data suggest that while initial exposure to vocal health concepts is strong, there is insufficient reinforcement through continuous professional development. Mid-ca-

reer teachers may benefit from refresher courses or vocal health programs aimed at reintroducing vocal care practices. Teachers with > 15 years have relatively low awareness of vocal warm-up exercises, potentially because their training predates widespread awareness of vocal health in educational settings. Despite their long experience, veteran teachers are the least likely to practice vocal warm-ups. This reluctance may be due to entrenched teaching habits or a lack of understanding about the importance of vocal care in preventing long-term vocal issues. Given their heightened risk of voice problems, it is critical to encourage behavioral changes in this group through targeted programs that highlight the benefits of vocal warm-up exercises for voice preservation [27].

Further, the insight toward the warm-up practices displayed by these teachers would provide proper framework and guidance for speech-language pathologists for habilitation and rehabilitation of voice among teachers. A vocal health program should be planned with a focus on improving their vocal range, projection, loudness, endurance, flexibility, and sustainability to help them in their classroom. Henceforth, the necessity was sought to survey the teachers regarding the perception of warm-up exercises and practices by them. Overall, the study has found that there is a need to focus forward on vocal training rather than vocal hygiene programs as a part of their professional, usage of amplification devices in the classroom, work on the nature of classroom setup and ergonomics factors maximizing the efficacy of the work and quality. Information on existing vocal health practices is crucial to facilitating and imparting vocal health education to teachers. This investigation found mixed results which could be not generalized due to the reduced sample size. There is a need to gather further detailed information about the practices of exercises in different school environments such as rural and urban in Indian scenarios.

CONCLUSION

Research from the Indian studies in late 2010s suggest that while there is growing awareness about the importance of vocal hygiene, the use of specific vocal warm-up exercises among teachers remains limited. This study discusses the vocal behavior, practice, and perception of vocal warm up practices among school teachers. It was identified that around fifty percent had an occurrence of voice problems or voice changes and they need to manage with their career. Attention should be paid to efficient vocal techniques, vocal hygiene, and

awareness of vocal care early in education. The findings of this survey throw limelight on the implementation of vocal education during the training of teachers and the need for research focusing on the benefit of early prevention and intervention programs for teachers. It also emphasizes the need for sensitization of teachers on the crucial role of vocal hygiene and warm-up practices in improving their voice function, consequently eluding future impairment and/or disability of the voice. Thus, it encourages the need for, curriculum developers in framing and executing programs/trainings aimed at promoting vocal health among teachers. Integrating these practices into daily routines could help reduce the high prevalence of voice disorders in the teaching profession.

CONFLICT OF INTEREST

No conflicts of interest were associated with this publication.

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AUTHOR CONTRIBUTIONS

All three authors contributed significantly to the conception and design of the study, data interpretation, and drafting of the manuscript. The first author was responsible for concept formation, data acquisition, and analysis. The second and third authors contributed significantly to the review process, data analysis, and interpretation. All of us agree and approve the final manuscript being submitted.

ETHICS APPROVAL STATEMENT

The research protocol was approved by the Institutional Ethics Committee with reference number 094/IEC/2022.

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APPENDIX 1

Perceptions and Practices of Vocal Warm-Up Exercises among School Teachers-A Survey

Name:

Age/Gender:

Contact number:

E-mail:

Address:

Qualification

1) Which type of teaching setup are you working?*

- Government school
- Private school
- University level

2) Which group of children do you teach?*

- Kindergarten
- Primary
- Secondary
- Higher secondary
- University level

3) How many hours of teaching in a day?*

- 1 hour
- 2
- 3
- 4
- ≥ 5

4) Do you have break in between classes?*

- Yes
- No

5) How many years of teaching experience?*

- < 2 years
- 2-5 years
- 6-10 years
- > 10 years

6) Do you consume alcohol?

- Yes
- No

7) Do you smoke?

- Yes
- No

8) Do you frequently intake spicy foods?

- Yes
- No

9) How many hours of sleep do you have?

- Less than 6 hours
- 6-7 hours
- Greater than 7 hours

10) How many glasses of water do you drink in a day?

- Less than 1 litre
- 1-1.4 litre
- 1.5-1.9 litre
- Greater than 2 litre

11) Do you have ventilation in the classroom?

- Poor
- Fair
- Good

12) How do you describe the temperature in the classroom?

- Poor
- Fair
- Good

13) How do you describe the noise in the classroom?

- Negligible
- Medium
- High

14) Do you use a chalk-board during teaching?

- Always
- Frequently
- Sometimes
- Never

- 15) Have you experienced any voice problems during and after class hours?*
- Yes
 - No
 - Maybe
- 16) How frequently have you experienced any voice problem?
- Daily basis
 - weekly basis
 - Monthly once
 - Never
- 17) Do you frequently experience any of the following voice symptoms? Check all that apply?
- Strained
 - Vocal fatigue
 - Disturbances/voice change
 - Throat clearing and coughing while talking
 - Voice breaks while talking
 - Difficulty in being heard/reduced loudness
 - Effortful voice production
 - Throat tightness
 - Dry or scratchy voice
- 18) Which part of the day you feel your voice problem is more?
- Morning
 - Afternoon
 - Evening
- 19) Are you aware of any vocal hygiene practices?
- Yes
 - No
- 20) Do you know any warm up exercises for vocal behaviours?
- Yes
 - No
- 21) Do you practice any type of vocal hygiene programme?
- Yes
 - No
- 22) If yes which of the following:
- Warm up exercise
 - Diet modification
 - Conservative voice usage
 - Complete voice rest
- None of the above
 - All of the above
- 23) Do you feel it is important to follow vocal warm up exercises as a teachers?*
- Strongly agree
 - Agree
 - Disagree
 - Strongly disagree
 - No opinion
- 24) What types of exercises do you do during warm-up session for your throat and voice (check all that apply)?*
- Breathing exercises
 - Postural alignment exercises
 - Stretching exercises for face/neck/shoulder muscles
 - Stretching exercises for other muscles (e.g., arms, legs)
 - Muscle relaxation exercises for face/neck/shoulder muscles
 - Muscle relaxation exercises for other muscles (e.g., arms, legs)
 - Mental relaxation/focus exercises (e.g., visualization, meditation)
 - General aerobic exercise (e.g., running, brisk walking)
 - Humming
- 26) I feel more mentally focused after I do vocal warm up exercises*
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly disagree
- 27) I feel more confident about my voice after I warm-up*
- Strongly agree
 - Agree
 - Disagree
 - Strongly disagree
 - No opinion
- 28) My voice feels tired after I warm up
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly disagree

29) My voice is more flexible after I warm up

- Strongly agree
- Agree
- Neutral/no opinion
- Disagree
- Strongly disagree

30) It is easier to sustain my voice after I warm up

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

31) I could hurt my voice if I don't warm up before teaching*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

32) My voice is better and co-operative following vocal warm up exercises*

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

33) Do you use any type of amplification devices during teaching?*

- Yes
- No

34) Do you practice any other traditional treatment for voice problem?

- Yes
- No

If yes, specify

35) Do you practice any type of self-remedy?

- Yes
- No

If yes, specify