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# Vocal Hygiene Program for Information Technology Enabled Service Professionals

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## ABSTRACT

Vocal hygiene program is a behavioral approach to treat voice disorders. It focuses on various vocal and non-vocal habits which, by following appropriately would reduce the symptoms of the voice disorder and also prevent developing a voice disorder. Information Technology Enabled Service (ITES) professionals are inclined to use their voice extensively to earn their living. Hence, this study focuses on developing a vocal hygiene program exclusively for voice users belonging to Information Technology Enabled Services. The results were compared using Voice Handicap Index, Vocal Fatigue Index before and after the implementation of vocal hygiene program on 31 professional voice users belonging to ITES which showed the improvements achieved were statistically significant. Hence, Vocal hygiene program for ITES professionals is a necessity and shall yield reliable realistic improvements.

***Keywords:*** Information Technology Enabled Service, Vocal hygiene program, Vocal Fatigue, Voice Handicap, Vocal and Non-vocal habits, Professional Voice Users.

## INTRODUCTION

Vocal hygiene is a broad concept, typically encompassing all facets of vocal health. A comprehensive vocal hygiene program often includes: education regarding the vocal mechanism; identification and reduction of phonotraumatic behaviors and high-risk vocal situations; conservation of voice or vocal rest, controlling the amount of talking, monitoring vocal pitch and intensity; local lubrication and systemic hydration; optimal dietary considerations; controlling laryngopharyngeal reflux, gastroesophageal reflux and allergies; and minimizing the influence of medications, environmental factors, and lifestyle choices on voice.[1]

Vocal hygiene is a behavioral approach to treating voice disorders that modifies vocal habits and improves vocal health. Some also suggest that it can be used in isolation to treat voice disorders. Vocal hygiene practices may be different in the various levels of professional voice users [2].

It is considered as a patient oriented behavioral treatment that can be employed as both a preventive and therapeutical (or direct and indirect) strategy. So treatment methods that contain vocal hygiene strategies can be classified into two separate groups: 1) Vocal hygiene program which includes techniques that educate patients about normal and abusive voice production and effects of environmental factors and individual habits on voice to prevent or reduce voice disorders (preventive or indirect method) 2) Vocal educational programs which have two phases; in one section they have traditional (preventive) vocal hygiene program and in another section they introduce some kind of voice training methods to shape or reform voice

producing approach. This approach addresses both speech and non-speech factors which control voice production with cognitive–behavioral techniques.[3]

Information Technology Enabled Services is a growing industry in India and has majority of literate youngsters as employees. According to the classification of Koufmann and Isaacson (1991), voice users in ITES can be classified under Level II which includes the professional voice users for whom even moderate vocal difficulty would prevent adequate job performance like clergymen, lecturers/ teachers, politicians, public speakers and telephone operators [4]. Also, Stemple (1993) defined professional voice users as those individuals who directly depend on vocal communication for their livelihood. The term "professional voice user" carries the expectation that they had training to bring their vocal skills up to a 'professional' level. It is suggested that their vocal skills allow them to use the voice effectively in a variety of settings and to different groups, by training, expertise and ability (Koufman,1998). When telephone operators are referred to as professional voice users, it means that the amount of time spent for job (vocal load) is concerned rather than the competent use of voice such as in singers [5].

These professionals are exclusively dependent on their voice for their profession (8-10 hours tele conversation/day) with occasional breaks. These kinds of professional voice users are more prone to develop vocal abnormalities and vocal abnormalities can refer to any inability of an individual to cope with working tasks such as vocal fatigue, loss of voice quality etc, which can also result in limiting the voice usage by causing discomfort or voice handicap. [6]. Apart from excessive voice use, the work environment factors such as static muscular overload, attending calls that are stressful, unsatisfactory air quality, and ergonomic conditions are reported to be the risk factors for the development of voice problems [7]. Evidences from the studies on professional voice users report that most of the vocal problems or their signs, often are either unattended or the professionals seek home remedies or self-management options which are mostly discontinued as soon as they feel a slight betterment which is enough to continue their work [4,8].

This study, thus aims to develop a vocal hygiene program to be followed by voice users in ITES profession in order to reduce the prevailing vocal symptoms and to prevent further increase of the vocal problem and also to prevent acquiring vocal issues due to their occupational nature.

The primary aim of the study is to check the effectiveness of vocal hygiene program in voice users who work in Information Technology Enabled Services. The objectives of the study include 1) To profile the vocal and non-vocal habits and to determine the results of Vocal Fatigue Index and Voice Handicap Index in voice users of Information Technology Enabled Services before the vocal hygiene program and 2) To check the effectiveness of vocal hygiene program by comparing the baseline results of Voice Handicap Index and Vocal Fatigue Index with the results post vocal hygiene.

## METHODOLOGY

### Vocal hygiene program protocol

A vocal hygiene program was developed for voice users belonging to Information Technology enabled Services with specific do's and don'ts based on the vocal and non-vocal habits according to the nature of their work and evidence from the literature (Refer Appendix- C). Construct and content validation of the vocal hygiene program was done by 3 Speech Language Pathologists.

### Profile of Vocal and Non-vocal Habits

Based on the biopsychosocial model of disability of International Classification of Functioning, Disability and Health (ICF-10), 2001, a direct interview was conducted with the participants and a questionnaire for profiling their vocal and non-vocal habits (Refer Appendix- B) was circulated among the participants to fill so as to tap on the

information on their body functions, general and vocal health related to personal and environmental factors. The responses were coded as yes or no (binary coding was used).

**Activity and participation**

According to International Classification of Functioning, Disability and Health (ICF-10), 2001, it is important to check and record the activities and participation of the individuals in all areas of life and the activity limitations and participation restrictions they experience. So, the following questionnaires were used in the study.

***Vocal Fatigue Index (VFI) – Version 2:***

The Vocal Fatigue Index is a standardized tool that can identify individuals with probable vocal fatigue with good reliability, validity, sensitivity, and specificity, developed by Nanjundeswaran et al. in the year 2015.[9]

VFI- 2 has 3 parts. Part I is based on factors related to tiredness of voice and voice avoidance, Part II is based on factors related to physical discomfort associated with voicing and Part III is based on factors related to improvement of symptoms with voice rest. VFI-2 has 19 questions in total with eleven questions in Part I, five questions in Part II and three questions in Part III which are rated using a five-point rating scale. The sectional scores determine the presence and nature of the vocal fatigue in the participants. [9]

***Vocal Handicap Index (VHI)***

The Voice Handicap Index (VHI) was developed by Jacobson et al in the year 1997.[10]

VHI was used to determine the nature and severity of handicapness caused due to the voice disorder. VHI has three sections namely, Functional, Physical and Emotional with 10 questions under each section. The questions are rated using a five-point rating scale. Their sectional score shows the nature of the Handicapness and the total score determines the severity of handicapness caused by the voice disorder which are classified as mild if the score obtained is below 30, moderate if the score falls between 30 and 60 and severe if the scores obtained were above 60. [10]

**Participants**

The study included ITES professionals who are working in day shifts under voice process of age 19 years to 35 years. Both male and female participants were included with an experience of 3 months to 3 years in this field. The study excluded participants who had a history of voice problems prior to joining this job, and participants who work in voice process but work as supervisors or managers as they do not use their voice for their full working hours. 31 participants (Refer Table 1 and Table 2) were taken (18 females and 13 males) who did not have any sensory-motor deficits and they were divided into three groups having 10, 10 and 11 members in each group. The participants were obliged to sign a consent (See Appendix- A) to participate in the study.

**Table 1: Frequency and percentage of gender groups.**

| Gender | Frequency | Percentage |
|---|---|---|
| FEMALE | 18 | 58.1 |
| MALE | 13 | 41.9 |
| Total | 31 | 100 |

**Table 2: Frequency and percentage of participants based on experience**

| Experience (in months) | Frequency | Percentage |
|---|---|---|
| 3 to 9 | 16 | 51.6 |
| 10 to 16 | 6 | 19.4 |
| 17 to 23 | 3 | 9.7 |
| 24 to 30 | 4 | 12.9 |
| 31 to 36 | 2 | 6.4 |

**Procedure**

***Pre-implementation***

A direct interview was conducted with the voice users belonging to ITES in order to determine their nature of work, the impact of the work on their personal and social life, difficulties experienced in the job with respect to voice usage, general health and emotional health. The standardized self-rating questionnaires, VHI and VFI-2 were circulated among the participants of the

study along with the questionnaire that profiles vocal and non-vocal habits and all the necessary information for the study including the demographic data of the participants. After filling up the questionnaires, vocal hygiene program was introduced to the participants. Each participant was given a handout that contained certain vocal and non-vocal dos and don'ts related to them. The handout also contained few vocal warm-up and cool-down exercises along with other relaxation exercises with step by step instructions. The exercises were also demonstrated to the participants. The effects of each element included in the vocal hygiene program were explained to the participants to make sure that they only carry practical outcome expectations. The participants were advised to follow vocal hygiene program for a stipulated time period of 2 weeks given for the participants to accede, follow and acknowledge the result.

***Post-implementation:***

A follow up assessment was carried out where the 2 self-rating questionnaires (VHI and VFI-2) and the questionnaire profiling the vocal and non-vocal habits were re-administered after the stipulated time.

The questionnaire administered on vocal and non-vocal habits provides confirmation that the participants have followed the vocal hygiene program through the given time period of 2 weeks. The standardized self-rating questionnaires were used to compare the vocal handicapness and vocal fatigue of the participants before and after the vocal hygiene program to check the impact of the vocal hygiene program in these professionals.

## RESULTS

### Prior to implementing vocal hygiene program

***Profile of Vocal and Non-vocal Habits***

**Vocal Habits**

31 Participants of both gender groups of 19-35 years with experience ranging from 3-36 months in this field were involved in the study. The vocal habits were profiled using binary coding (Refer Table 3 and Figure 1). The table reveals that more than half the participants followed inappropriate vocal habits. Only one participant was a local mimicry artist who did not have appropriate vocal training for it.

**Table 3: Frequency, Mean percentage and Standard deviation of participants having inappropriate vocal habits**

| Vocal Habits | Frequency | Mean percentage | Standard Deviation |
|---|---|---|---|
| Coughing/ sneezing loudly | 22 | 71 | 0.45 |
| Throat clearing | 21 | 67.7 | 0.46 |
| Screaming/ shouting | 23 | 74.2 | 0.43 |
| Talking in noisy environment | 23 | 74.2 | 0.43 |
| Singing without appropriate | 28 | 90.3 | 0.29 |
| Talking for extended periods of time | 15 | 48.4 | 0.49 |
| Any other (mimicry, | 1 | 3.2 | 0.44 |

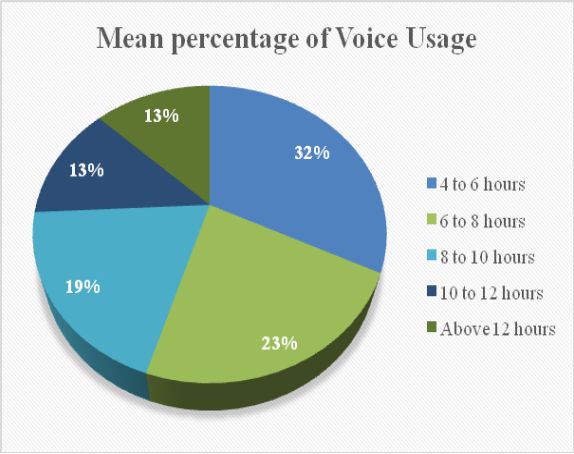


**Figure 1: Mean Percentage of Voice Usage per day on an average**

**Non-vocal habits**

The non-vocal habits were profiled using binary coding (Refer Table 4 and Figure 2). The analysis reveals that more than 70% of participants had the habit of caffeine intake that is more than the appropriate level and also consumed spicy food. About 25% of the participants had the habit of consuming carbonated drinks and followed improper diet practices such as eating at improper intervals. Around 68% of the participants consume less than

appropriate amount of water intake generally prescribed to any voice user.

**Table 4: Frequency, Mean percentage and Standard deviation of participants having inappropriate non-vocal habits**

| Non-Vocal Habits | Frequency | Mean percentage | Standard Deviation |
|---|---|---|---|
| Intake of Caffeine Products | 24 | 77.4 | 0.44 |
| Exposure to environmental Irritants | 6 | 19.4 | 0.4 |
| Smoking | 1 | 3.2 | 0.18 |
| Alcohol Consumption | 3 | 9.7 | 0.3 |
| Intake of spicy food items | 22 | 71 | 0.45 |
| Consuming carbonated drinks | 9 | 29 | 0.45 |
| Chewing tobacco/snuff/pan | 0 | 0 | 0 |
| Improper diet practices | 8 | 25.8 | 0.48 |

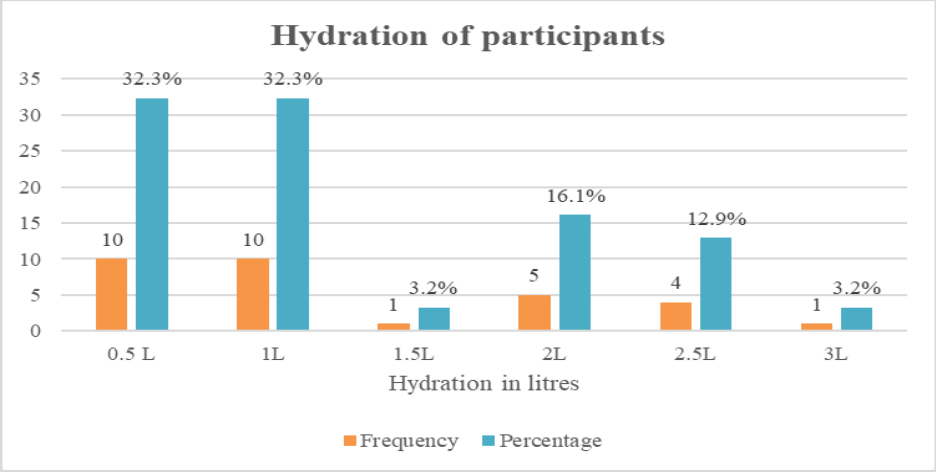


**Figure 2: Amount of hydration of the participants**

***Voice abnormality profile***

**Interpretation of VHI**

The total scores of VHI was calculated and the participants were classified based on the three levels of severity, namely, mild, moderate and severe. (Refer Figure 3). The result reveals that 7% of the participants had voice problems that was severely handicapping, 19% had moderate handicap and 74% of the people had mild Handicap.

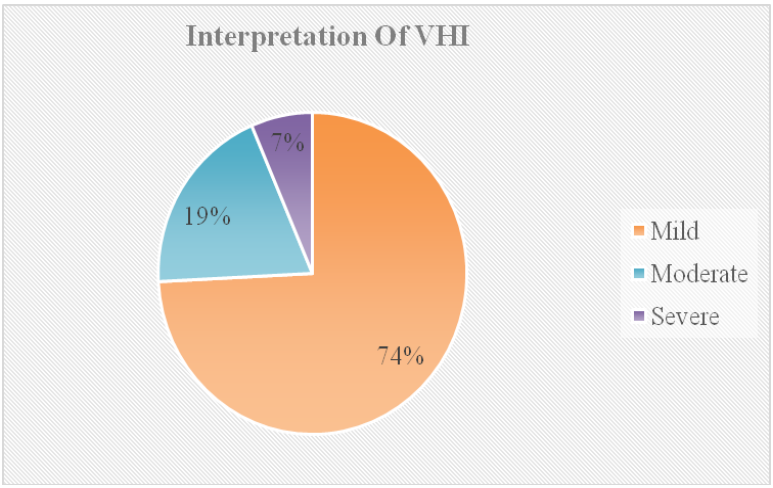


**Figure 3: Interpretation of Voice Handicap Index (VHI)**

**Interpretation of VFI-2**

The sub total scores were calculated for all the three parts of Vocal Fatigue Index separately and the frequency of participants based on their sectional scores indicating vocal fatigue is represented in the graph below (Refer Figure 4). The result shows that 16.1% of participants had vocal fatigue

related to tiredness and avoidance of voice, 41.9% of participants had vocal fatigue related to physical discomfort associated with voicing and 77.4% of the participants had vocal fatigue related to improvement of symptoms with voice rest.

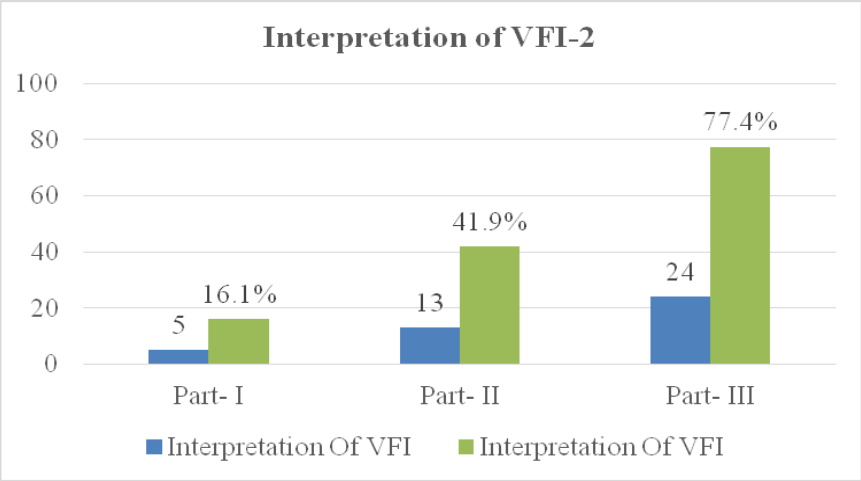


**Figure 4: Frequency and percentage of participants having vocal fatigue.**

**Post implementation of vocal hygiene program**

A time period of 2 weeks was given to check the outcomes and the result of the follow up were recorded.

***Profile of Vocal and Non-vocal Habits***

**Vocal habits**

Vocal Habits profiled using the questionnaire through binary coding post vocal hygiene program revealed that the frequency of participants having inappropriate vocal habits reduced drastically. Less than 13% of participants only retained the inappropriate vocal habits (See Table 5).

**Table 5: Frequency, mean and standard deviation of participants having inappropriate vocal habits.**

| Vocal Habits | Frequency | Mean percent | Standard Deviation |
|---|---|---|---|
| Coughing/ sneezing loudly | 2 | 6.5 | 0.25 |
| Throat clearing | 4 | 12.9 | 0.34 |
| Screaming/ shouting | 2 | 6.5 | 0.25 |
| Talking in noisy environment | 3 | 9.7 | 0.30 |
| Singing without appropriate | 3 | 9.7 | 0.53 |
| Talking for extended periods of time | 1 | 3.2 | 0.45 |
| Any other (mimicry, | 0 | 0 | 0 |

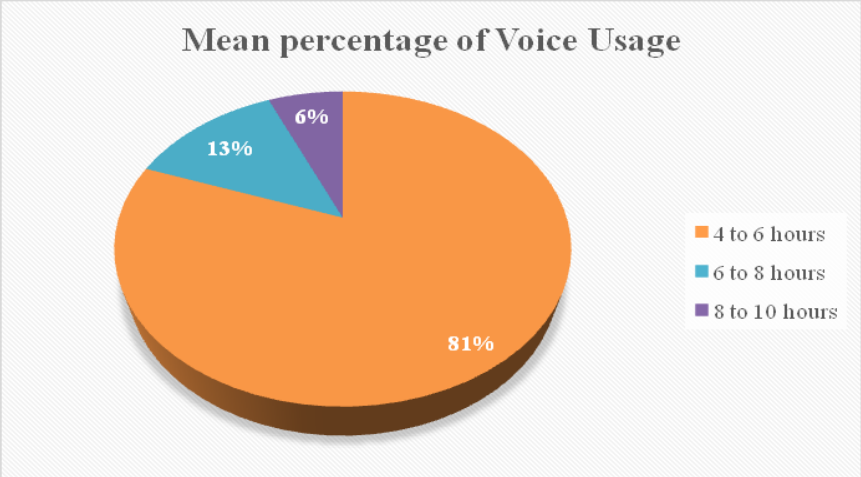


**Figure 5: Mean percentage of Voice Usage per day on an average**

**Non-vocal habits**

Non-vocal habits profiled through the questionnaire after the vocal hygiene program revealed that the participants also restricted themselves from continuing inappropriate non-vocal habits and two participants have also quit consuming alcohol acknowledging the importance of voice and vocal hygiene (See Table 6). Also, participants have made attempts to increase their amount of water intake (Refer Figure 6)

**Table 6: Frequency, mean and standard deviation of participants having inappropriate non-vocal habits**

| Non-Vocal Habits | Frequency | Mean percent | Standard Deviation |
|---|---|---|---|
| Intake of Caffeine Products | 8 | 25.8 | 0.25 |
| Exposure to environmental Irritants | 2 | 6.5 | 0.17 |
| Smoking | 1 | 3.2 | 0.17 |
| Alcohol Consumption | 1 | 3.2 | 0.37 |
| Intake of spicy food items | 5 | 16.1 | 0.18 |
| Consuming carbonated drinks | 1 | 3.2 | 0.70 |
| Chewing tobacco/snuff/pan | 0 | 0 | 0 |
| Improper diet practices | 0 | 0 | 0 |

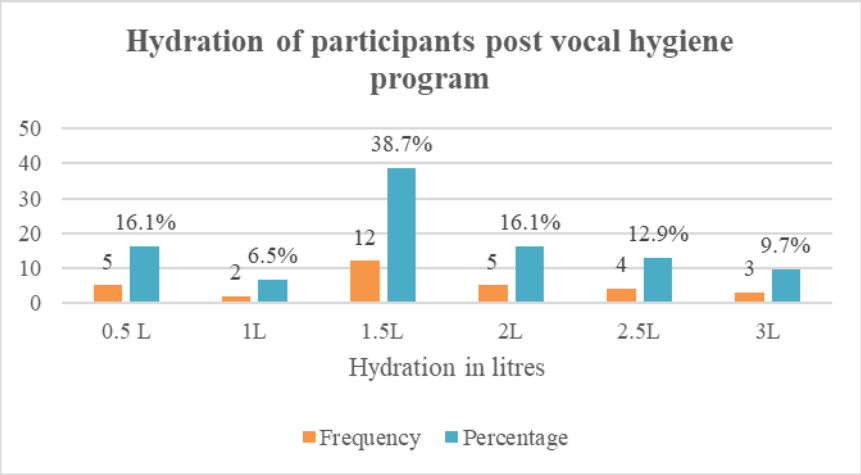


**Figure 6: Hydration of participants post vocal hygiene program**

***Voice abnormality profile***

**Interpretation of VHI**

The results interpreted through the total scores of VHI shows that the severity of the voice handicap is reduced. The sectional scores have also decreased when compared between their baseline results (See Figure 7).

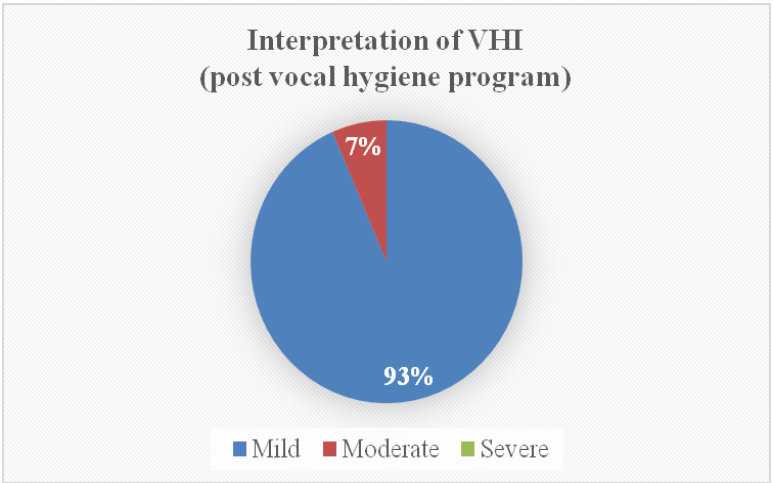


**Figure 7: Interpretation of Voice Handicap Index (VHI) post vocal hygiene program.**

**Interpretation of VFI-2**

The result inferred through the sub total scores of Vocal Fatigue Index shows that the vocal fatigue related to all 3 factors on which questions of VFI was based on was decreased or recovered. (See Figure 8).

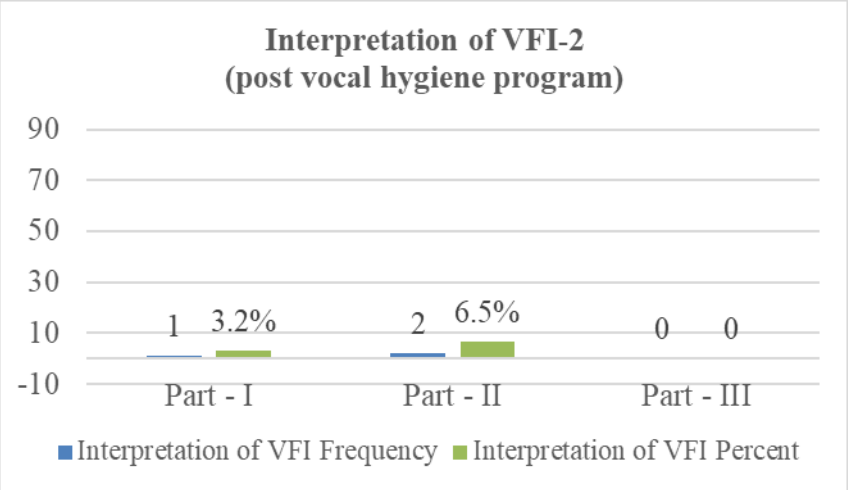


**Figure 8: Frequency and percentage of participants having vocal fatigue.**

**Comparison between pre & post vocal hygiene program**

***Profile of Vocal and Non-vocal Habits***

When compared between the results of vocal and non-vocal habits profiled pre- and post-vocal hygiene program, it is very evident that the participants have followed the vocal hygiene program appropriately.

***Voice abnormality profile***

Paired 't' test was done to compare the significance between the pre- and post-data results of Vocal Handicap Index and Vocal Fatigue Index-2. The results reveal that there is both clinically and statistically significant difference when compared between the pre- and post-results of both the self-rating questionnaires (p value < 0.005)

**Comparison of VHI scores**

The VHI results (See, table 7) shows that both there is a significant difference between the results of pre- and post-vocal hygiene program for all three sections, Functional (p value = 0.000), Physical (p value = 0.000) and Emotional (p value = 0.001) as well as the total scores that determines the overall severity (p value = 0.000)

**Table 7: Paired 't' test table for VHI**

| Paired 't' test table for VHI | | | | | | |
|---|---|---|---|---|---|---|
| **Pair** | **Section** | **Before/After** | **Frequency** | **Mean** | **Standard Deviation** | **p-value** |
| Pair-1 | Functional | Before | 31 | 8.32 | 6.145 | 0.000 |
| | | After | 31 | 3.23 | 3.694 | |
| Pair-2 | Physical | Before | 31 | 10.48 | 7.117 | 0.000 |
| | | After | 31 | 4.35 | 5.251 | |
| Pair-3 | Emotional | Before | 31 | 6.13 | 6.732 | 0.001 |
| | | After | 31 | 2.39 | 3.019 | |
| Pair-4 | Total scores | Before | 31 | 25 | 17.918 | 0.000 |
| | | After | 31 | 9.87 | 11.06 | |

**Comparison of VFI-2**

**Table 8: Paired 't' test table for VFI-2**

| Paired 't' test table for VFI-2 | | | | | | |
|---|---|---|---|---|---|---|
| **Pair** | **Section** | **Before/After** | **Frequency** | **Mean** | **Standard Deviation** | **p-value** |
| Pair-1 | Part-I | Before | 31 | 11.55 | 8.613 | 0.000 |
| | | After | 31 | 4.94 | 5.921 | |
| Pair-2 | Part-II | Before | 31 | 6.45 | 5.921 | 0.001 |
| | | After | 31 | 2.97 | 4.809 | |
| Pair-3 | Part-III | Before | 31 | 4.45 | 3.345 | 0.000 |
| | | After | 31 | 8.16 | 1.393 | |

The paired 't' test results of VFI-2 (See table 8) revealed that there is a significant difference in the results obtained before and after following vocal hygiene program for each parts- Part I (p value = 0.000), Part II (p value = 0.001) and part III (p value = 0.000). However, we cannot account the total scores for VFI-2 since, the Part III scores tend to increase as the individual recovers stating that the vocal fatigue reduces with rest while the other two part-scores (Part I & Part II) tends to decrease with improvement.

## DISCUSSION

ITES professionals are similar to that of radio jockeys and/or telephone operators for whom their voice is one important factor that keeps their work going. A study done on 38 Radio Jockeys on their vocal abnormalities and their vocal hygiene practices showed that about 1/4$^{th}$ of the participants had voice problems and they were able to notice the changes in voice throughout the day upon usage. The study also reported that habits like coffee intake, smoking, alcohol and tobacco consumption, drinking aerated drinks, eating spicy foods etc. were present among them and also only 5.26% of the study population had been attending voice training [11]. Another study on professional voice users reported that common cold was thought to be the reason for the voice change by many of the professionals in the study and that they were not really aware that their vocal hygiene practices could be a reason. The study also reported that many of these professionals who followed abusive non-vocal behaviors did not know the its ill effects on the vocal mechanism and hence continued to follow them [4]. Throat clearing was also commonly seen in almost all professional voice users as a prevailing symptom [7,8]. ITES profession involves attending calls from clients and customers that might be stressful, attending more than 80-100 calls minimum per day, extending shifts when target loads are high, working in an air conditioned environment which again influences non-vocal behaviours such as smoking, caffeine intake, alcohol consumption, etc. The evidences from the literature shows the lack of awareness among such professionals and also their vocal hygiene habits creating the necessity to educate such professionals on vocal hygiene program and help them to facilitate preservation of their voice quality and also prevention of voice abnormalities such as vocal fatigue and vocal quality.

In the current study, the participants reported much greater vocal abuse practices including attending more than 100-120 calls per day at an average and more than 150 calls when the load is high which requires them to extend the shifts and reduce the rest or recess time or even work without breaks in order to complete the targets soon.

As discussed in the results, these participants reported to have both vocal and non-vocal abusive behaviors and it was evident in their scores obtained via the questionnaires.

When the vocal hygiene program was introduced, these participants were closely monitored with the co-operation of the Team Leaders and also few guidelines, rules and restrictions were instilled at their work environment (like, restricting the amount of coffee supplied to an individual per day, practicing vocal warm up and warm down exercises before and after work as a team, restrictions towards carbonated drinks sold in the cafeteria, regular breaks between works on rotational basis, etc.) to make them follow this vocal hygiene program strictly for the stipulated time, which received positive response from the participants' side.

When compared the results between pre and post vocal hygiene program, within a short period of time, it was observed to yield a very good positive result showing the efficiency of the vocal hygiene program implemented in these participants of ITES profession.

## CONCLUSION

The voice is a primary work tool in a vocally demanding work environment like a call center. Several preventive and protective measures such as good work design, providing information and training can improve employees' wellbeing and performance [12]. IOSH states that preventing is important than treating [13]. So, a vocal hygiene program that is specific to the voice users belonging to ITES was developed and implemented. The result proves that the vocal hygiene program developed was effective in terms of preventing voice problems, reducing the symptoms and improving quality of life. Hence, the study concludes that vocal hygiene program developed for ITES professionals shall yield effective, positive, reliable and realistic improvements.

### Disclosure of Interests

The authors report no conflict of interest.

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## APPENDIX- A

**Consent form**

I am Mr/Ms _____ aged _____ working as an employee in voice process _____ for _____ years . I give consent to participate as a participant in this research study. The research purpose has been explained to me. I have been given the opportunity to fill this questionnaire and all the questions have been answered to my fullest satisfaction.

Participant's Signature

## APPENDIX- B

**Questionnaire**

***Vocal habits (Yes/ No, if Yes give details)*** :

- Coughing or sneezing loudly :
- Throat clearing :
- Screaming/ Shouting :
- Talking in noisy environments :
- Singing Pitch: Class/ Practice :
- Talking for extended periods of time :
- Any other (describe) :
- Quantification of no. of hours of voice usage per day :

***Non vocal habits (Yes/ No, if Yes give details)*** :

- Intake of Caffeine products (coffee, chocolate, Cocoa) :
- Environmental irritants exposure :
- Smoking :
- Alcohol consumption :
- Intake of spicy food items :
- Consuming carbonated drinks :
- Hydration (No. of glasses per day) :
- Habit of chewing tobacco, snuff, pan) :
- Dietary Modifications :

## APPENDIX- C

**Protocol for Voice Users In Information Technology (ITES) Professionals**

Each human being has a voice that is distinct and different from everyone else's. In order to preserve the God gifted nature of our voice, we are required to follow some maintenance strategies. Here, are some ***DOs*** **and** ***DONTs*** for voice users in ITES field.

**DOs:**

- ✓ Keep yourself hydrated (8-10 glasses of water/ day at minimum at room temperature)
- ✓ Drink warm water or consume other alternatives listed below whenever there is a discomfort in voice is felt
- ✓ (Milk with turmeric/ ginger/ Adhimadhuram/ honey/ pepper/ salt-water gargling/ steam inhalation/ Use of herbal or honey laden lozenges to soothe your throat.)
- ✓ Culture the habit of eating on appropriate timings / eat once in 2-3 hours (3 times meals and 3 times snacks/ day)

- ✓ Consume fresh juices/ hot drinks with no or minimal sugar. (aspertaine and sachharines are the main reason leading to diabetes, which in turn results in voice problem)
- ✓ Use abdominal breathing for both speech and non-speech activities and also keep a check on your speaking posture.
- ✓ Use an amplificatory device such as microphone and speakers when you address a larger crowd or use other alternatives
- ✓ Take adequate voice rests in between your works and speak softly, if it is essential, when your voice is already strained due to vocal loading.
- ✓ Practise vocal warm-up and cool down exercises along with relaxation exercises.
- ✓ The warm ups must be performed within 15 minutes of activity.
- ✓ Monitor and maintain the pitch and loudness of your voice at your comfortable level.
- ✓ Use anti-cough or anti-allergies in case of frequent coughs or sneezing after a consultation with doctor.
- ✓ Use protective measures against dust/ smoke that may cause cough or throat irritation.
- ✓ Keep yourself emotionally balanced and stress free, for example, Involve in any recreational activities.
- ✓ Do physical exercises to keep your body fit and take a short walk in between your work.
- ✓ Regulate yourself to have 6-8 hours of sound sleep every day.
- ✓ Make time for yourself and spend quality time with family and friends
- ✓ Check your voice with a Speech Language Pathologist atleast once in 3 months.
- ✓ Follow up for an audiological evaluation yearly.
- ✓ Take caution on your endocrine imbalance and blood pressure changes.
- ✓ Consult a vocologist, when you are required to modify your voice or the accent of your language.

**DON'Ts:**

- × Avoid smoking and second hand smoking.
- × Avoid consuming alcohol.
- × Avoid chewing tobacco, pan and snuffs.
- × Avoid coffee and caffeine products.
- × Avoid carbonated / soft drinks.
- × Avoid white sugar (Use of brown sugar is suggested).
- × Avoid consuming cold or frozen items such as ice cream, chilled tea.
- × Avoid intake of spicy food.
- × Avoid citrus foods (lemon/ lemon juice/ orange/ orange juice, etc.)
- × Avoid throat clearing.
- × Do not shout/ yell/ speak or sing loudly/ whisper.
- × Avoid talking in noisy environments.
- × Avoid talking when your feedback is obstructed (with headphones or earphones on).
- × Avoid talking when travelling in open vehicles.
- × Avoid mouth breathing.
- × Avoid excessive/ harsh coughing or sneezing.
- × Avoid vocal loading and straining your voice when your voice needs rest.

**Vocal Exercises:**

1. Warm up exercises:

- ➢ Breathing exercise:
  - Keep your back straight and your shoulders back and relaxed.
  - Place both of your hands on your stomach
  - Breathe in through your nose
  - Expand your abdomen and lungs/ribs as you breathe in
  - Hold your breath and count to 10

- Then, slowly exhale. As you exhale, make sure to contract your abdomen as if you are pushing the air out.
- Repeat the exercise two or three times.

Note: While performing this breathing exercise, your shoulders should remain in place and should not be moving up and down as you breathe.

- Relaxing oral musculature:
  - With your mouth slightly open, swish your tongue around, as well as back and forth in your mouth.
  - Do this for five to eight seconds.
  - Repeat this exercise two to three time.
  - This exercise will help loosen and relax the muscles at the back of your tongue.

- Oral massage:
  - Position your palms on side of your face.
  - Using slow, circular motions, massage your cheeks and jaw muscles with your palms.
  - Lower and raise your jaw as you massage to help loosen your jaw muscles.
  - Do this exercise for 20 to 30 seconds, 3-5 times.

- Neck and shoulder roll:
  - Keeping your shoulder still, slowly rotate your head counter-clockwise and then clockwise.
  - Do this for ten times.
  - Keeping your neck still, rotate your shoulders backward for ten times and then forward for ten times.
  - This exercise coupled together; will help you loosen your muscles around your neck.

2. Strengthening your speaking voice:
- Saying ‘Mmm’
  - Say ‘Mmm’ until you feel your front of your face buzz or vibrate.
  - The vibration may cause the front of your face to tickle a bit, but this means you are doing your exercise correctly.
  - Repeat the exercise five times.
  - Saying ney, ney, ney
  - Repeat ‘ney ney ney’ going up and down your vocal range.
  - Say ‘ney ney ney’ loudly but do not yell.
  - Repeat the exercise 10 times.

Benefits of vocal warm-up exercises:
- Increased speed of muscle contraction and relaxation
- Greater economy of movement due to lower viscosity resistance
- Higher muscle temperatures (increasing blood flow, facilitating oxygen utilization, nerve transmission and muscle metabolism)
- Improved mental focus on training or competition.

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