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Identification of symptoms of the vocal fatigue in stage actors

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Abstract
Vocal fatigue is a common symptom observed in all professional voice users but especially it is more common in stage actors with intense impact. Different symptoms have been reported by various individuals that could indicate the vocal fatigue. The purpose of this study was to identify various symptoms of vocal fatigue experienced by the actors. The study was carried out on 20 stage actors by administering the self-reported vocal fatigue questionnaire in pre and post-performance conditions. The questionnaire consisted of 16 questions to be rated on a score of 0-4 suggestive of none, very mild, mild, moderate and severe. It was found that total 8/16 symptoms such as loudness range, difficulty in voice projection, harshness, hoarseness, breathiness, pitch breaks, unsteadiness in voice and weakness in voice were commonly observed self-reported symptoms of vocal fatigue.

Keywords: actors, symptoms, professional voice users, vocal fatigue, and self-rating questionnaire

Introduction
Actor's voice is one of the cornerstone attributes of their career. These are a large group of individuals, by nature of their occupation, are directly dependent for their livelihood on their voice. They are classified as users of "professional voice" Stemple *et al*., (1995) [1]. The instinct that *"Show must go on!"* often forces an actor to perform despite the illness, even laryngitis, sometimes may have career shattering results. For them even a slight deterioration in their voice can have dire consequences on their professional life thus affecting their livelihood in turn. Actors may face a variety of voice problems depending on their professional status in their acting career. They may appear commonly in the TV, theatre and folk arts. Actors are in a field where the law of supply & demand working against them. During a performance, actors need to talk, shout, cry, emote various feelings, move and dance. Lot of rehearsals with various voice modulations may require an actor to adjust voice accordingly. In addition to acting if an actor is employed, then the long rehearsals followed by daytime employment (if any) may add to more problems which can have adverse effect on voice. For the solo performance Different emotions have to be projected very fast and energetically hence placing high demands on their in their vocal projections.

In Indian scenario, many a times in rural set up, actors do not get an opportunity to always perform in close theatre having good acoustics. They may have to perform in open theatres or playgrounds or at times even in closed theatre but with poor acoustics. Sometimes there are technical difficulties with the sound systems. Actors often put tremendous pressure on the vocal mechanism in such situations. They also have to travel long distances where there are no air services available hence have to take buses, trains etc. thus exposing them to dusty environment. Professional actors have to attend lot of social gatherings and parties apart from their busy schedules. This may deprive the actor of enough rest. Also above all of these factors one should also be aware with the fact that an 'actor is an individual who lives a common man's life with having an extra ordinary lifestyle'. Therefore an actor also has family demands that he needs to meet. Hence he is bound with professional, personal and social demands that he has to fulfil which may cause psychological stress to him at times. It is well documented that the vocal abuse increases the risk of vocal fatigue and vocal pathologies resulting from dysfunctional voice use Sataloff, (1987) [2]. Vocal fatigue and changes in voice quality can seriously impair an actor's ability to perform (Eustace, Stemple, & Lee, 1996) [3]. Higher the experience better are the coping mechanisms and more knowledge in the field of voice care (Zeine & Walter, 2002) [4].

So far, phenomenon of vocal fatigue has been amply researched in teachers & singers but, very few studies have been done on actors. The working conditions, demands & working style faced by Indian stage actors are different from those in Western countries. No study related to vocal fatigue in actors has been taken up in Indian scenario. This study will throw the light on phenomenon of vocal fatigue in actors in pre & post performance & also act as a primary prevention to create awareness among actors & to detect them at early stage to prevent from further serious laryngeal injury.

Participant Selection
20 actors consisting of 14males and 6females in age range of 20-40years who had more than 2years of stage experience were selected. It was ensured that the participants had more than 30-45minutes of continuous ongoing stage performance during the time of testing.

Also, participants who had URTI, any vocal fold pathology at the time of the study or have attended voice/speech therapy in the past or during the time of testing were excluded from the study.

Material and Methodology

This research was approved by the Research Ethics Committee of the Maharashtra University of Health Sciences, (MUHS), Nasik. Actors were explained in detail about the purpose of study, its significance and also their queries pertaining to study were clarified by the researcher. Participants who showed interest and willingness to participate in the study signed the free informed consent form. Necessary and appropriate prior permissions were obtained from concerned authorities before visiting the shows for data collection. Care was taken not to disturb the participants schedule or performance for data collection. Procedure was done at backstage or in the green room whichever was quieter and more comfortable. The entire procedure tasks was carried out twice with the participants that is at the beginning of the performance (pre) and after the performance (post). During both the procedures of questionnaire filling, care was taken that actors have adequate time to relax and carefully read the questionnaire thoroughly and answer with their own comfortable and relaxed pace. In no circumstances they were subjected to do the task in hurried or rushed manner.

Initially, a case history, consisting of demographic details, significant medical history, lifestyle pattern regarding eating, sleeping, diet and addictions habits, and information related to their vocal usage and professional demands was obtained by each participant .

The Vocal Fatigue questionnaire used in this study was adapted from one used in the study " The Perceptual Features of Vocal fatigue as Self-Reported by a Group of Actors & Singers" J. Oates & J. Kitch (1994) [5]. Five experienced Speech Language Pathologists were asked to check the face validity, and was used only after doing the intra-rater reliability and validity of the questionnaire form the severity of the fatigue was rated on 5 point scale, where, 0 = none, 1 = very mild, 2 = mild, 3 = moderate, 4 = severe.

Results

The entire data was subjected to the Test of Normality using One-Sample Kolmogorov-Smirnov Test. It was found that only total fatigue scores in pre and post conditions were normally distributed and hence were subjected to parametric test (paired t-test) and pre and post scores on individual questions were subjected to non-parametric test (Wilcoxon Signed test).

The questionnaire contained 16 questions out of which question numbers 1-9 were voice related symptoms and 10-16 were physical related symptoms.

The mean, S.D and p values for questions are given below:

Table 1a: Question wise comparison of pre and post-performance scores of actors on vocal fatigue questionnaire.

S. No	Question	Performance	Mean	S.D	Z value	P value
1.	Pitch Range affected	Pre	0.00	0.00	-2.714(a)	.007*
		Post	0.50	0.76		
2.	Pitch Range affected	Pre	0.15	0.48	-1.723(a)	.085
		Post	0.65	1.13		
3.	Harshness in voice	Pre	0.15	0.36	-2.484(a)	.013*
		Post	1.15	2.30		
4.	Hoarseness in voice	Pre	0.15	0.36	-2.308(a)	.021*
		Post	0.75	1.11		
5.	Difficulty in projecting voice on stage	Pre	0.0	0.00	-2.388(a)	.017*
		Post	0.75	1.20		
6.	Breathiness in voice	Pre	0.20	0.41	-2.388(a)	.017*
		Post	0.35	0.67		
7.	Pitch Breaks in voice	Pre	0.10	0.44	-1.897(a)	.058*
		Post	0.45	0.75		
8.	Unsteadiness in voice	Pre	0.10	0.30	-2.460(a)	.014*
		Post	0.65	0.98		
9.	Weakness in voice	Pre	0.10	0.30	-1.930(a)	0.54*
		Post	0.55	0.99		
10.	Pain/Soreness in throat	Pre	0.20	0.52	.000(b)	1.000
		Post	0.20	0.52		
11.	Tension in neck/shoulder region	Pre	0.10	0.30	-1.000(a)	.317
		Post	0.15	0.36		
12.	Require greater vocal effort to produce voice	Pre	0.35	0.93	-1.730(a)	.084
		Post	0.65	1.04		
13.	Dryness in throat	Pre	0.35	0.58	-1.310(a)	.190
		Post	0.68	0.88		
14.	Constriction/Tightness in throat	Pre	0.15	0.36	.000(b)	1.000
		Post	0.15	0.36		
15.	Urge for coughing	Pre	0.35	0.58	-1.000(a)	.317
		Post	0.45	0.75		
16.	Urge for throat clearing	Pre	0.60	0.68	-1.730(a)	.084
		Post	0.90	0.96		
		Post	0.90	1.00		

$p<0.05$

a=Based on negative ranks

b= The sum of negative ranks equals the sum of positive ranks.

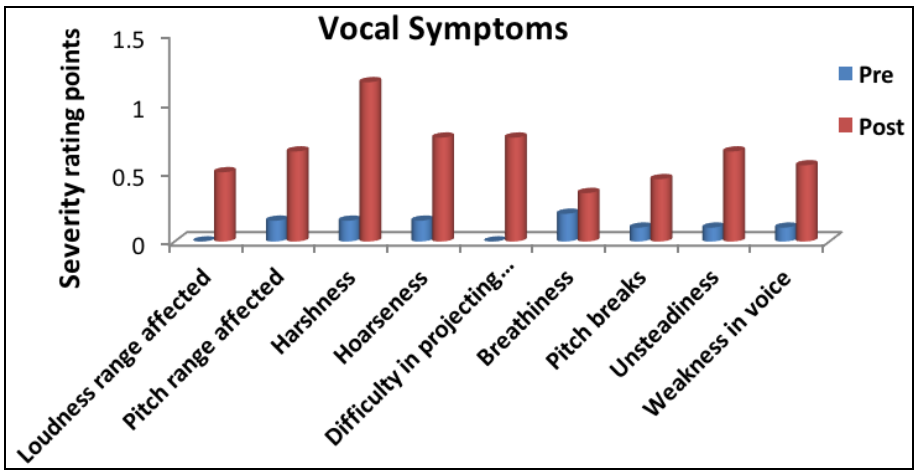

Fig 1.a: Mean scores of fatigue related vocal symptoms

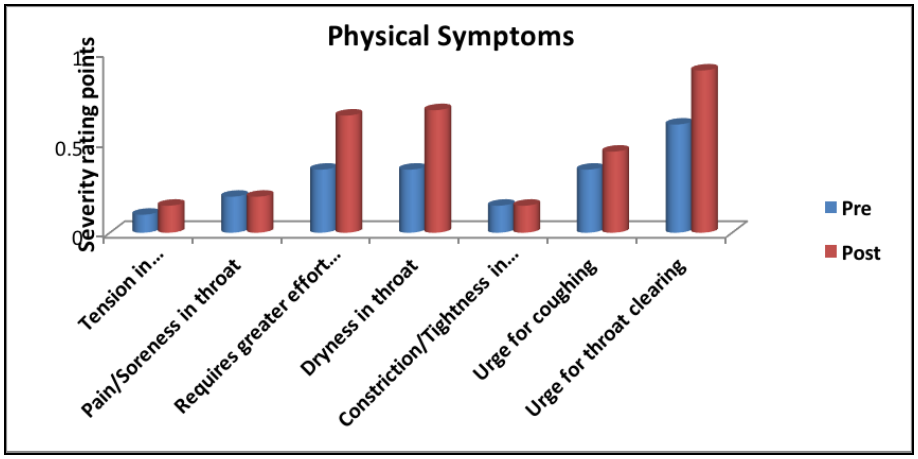

Fig 1.b: Mean scores of fatigue related physical symptoms

Table 2: p value on paired 't' test for total fatigue score

	Mean	S.D	't'	P
Total score Pre	3.20	2.726	-3.316	.004*
Total score Post	8.35	7.386		

$p<0.05$

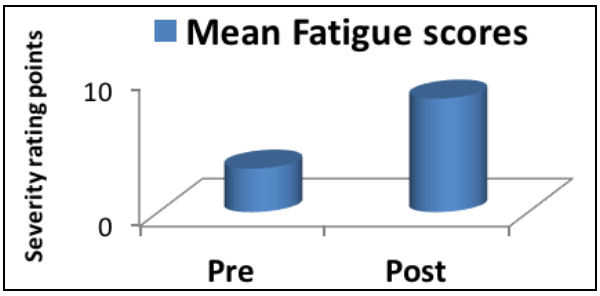

Fig 2: Mean total fatigue scores

An overall trend can be seen that out of 16 questions the post-performance fatigue scores for 14 questions were greater (worse) as compared to pre performance fatigue scores. However a significant difference between pre and post findings is found only on 8 vocal fatigue symptoms namely, Loudness range affected, Harshness in voice, Hoarseness in voice, Difficulty in projecting voice, Pitch breaks, Breathiness, Unsteadiness in voice, Weakness in voice, Pitch breaks and Breathiness in voice. Most of which are voice related symptoms.

The findings of the present study are in partial agreement to that obtained by Kitch. J and Oates. J (1994) [5] who studied the vocal fatigue in actors and singers, and reported that for singers, vocal fatigue affected their vocal dynamic aspect (pitch range) whereas for actors vocal fatigue affected their power aspect (loudness range).

Relekar and Mukundan (2017) [8] studied vocal fatigue among teachers and reported that physical symptoms are more likely to appear prior to vocal symptoms. However, results obtained in the present study are contrary to those reported by Relekar and Mukundan (2017). Vocal fatigue symptoms reported by actors in the present study were mainly voice related. This could probably be attributed to the fact that this study targeted actors. Moreover, since an actor's entire focus of attention is on their voice hence they are, more sensitive to perceive changes in vocal symptoms as compared to physical symptoms.

Conclusion

The study suggests that there is an increase in self perceived vocal fatigue after the stage performance among actors. The most affected symptoms are Loudness range affected Pitch

breaks, Harshness, Hoarseness, Breathiness, and Weakness in voice, Unsteadiness in voice and Difficulty in projecting voice on stage. The findings of the present study may be beneficial in educating actors, about the care and maintenance of voice. The findings of the present study not only provide good preventive and educative information, but would also aid the SLP's in diagnosis, counselling and therapy planning for the actors.

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