



ORIGINAL RESEARCH PAPER

Arts

A PRELIMINARY STUDY ON VOICE CHARACTERISTIC OF THEYYAM ARTIST (A TRADITIONAL ART FORM OF KERALA)

KEY WORDS: theyyam artists, voice parameters

Feby Sabu* *Corresponding Author

Amritha Ashok

Krishnapriya KP

Geethu K Sunny

ABSTRACT

INTRODUCTION: Most of the professional voice users have voice deviancies compared to that of normals. This rises to the peak when these individuals are performing artists. It is known fact that their age, duration of voice usage is directly linked to voice worsening.

AIM: To find the acoustic characteristics of individual performing religious rituals like theyyam, a old aged traditional ritualistic art form of south India; especially in parts of Kerala, India and borders of Kerala – Karnataka, India.

NEED

To get a better understanding of the vocal characteristics of voice users in religious rituals for future references to tackle assessment and management strategies. Also, to understand the deviancies form the other professional voice users as well as normal healthy individuals.

METHODOLOGY: 30 Male subjects, between the age group of 18 to 40 with mean age range of 33.06years; performing religious rituals like theyyam were considered for the study. Voice evaluation was carried to find the vocal characteristics among them. These subjects were recruited for the study such that they do not exhibit any history of voice or related health issues.

RESULTS & CONCLUSION: Results revealed considerable variance in theyyam artists compared to that of the normal healthy individuals.

INTRODUCTION

Theyyam is a traditional Hindu ritualistic art form of south India, especially in Kerala and borders of Kerala - Karnataka. This cultural form has been routinely depicted in most of the customary festivals. This artistic form is a collaboration of motoric movements as well as use of voice. The extreme usage of voice at various intensities and pitch, results in voice deficiency in theses performance. As there are only limited research works done on these professional voice users, literatures provides little data on them. Most of works and projects are solely pertained to professional voice users such as of singers, teachers and other art forms, evidence to provide support to this current study can be inferred.

Larrouy Maestri, Magis & Morosomme (2014) conducted an evaluation of vocal pitch of operatic singers to measure jitter, shimmer, harmonics-to-noise ratio, and fundamental frequency. The results revealed that the perceptual ratings were not directly linked with the objective measures of pitch accuracy. However, Devdas, Rajashekar & Venkataraja (2009) found no significant difference between the yakshagana singers and non singers on jitter%, shimmer dB, NHR, and S/Z ratio. Similarly, on carnatic singers, Arunachalam, Boominathan, Mahalingam (2014) found that, there is change in voice by 42.2% and 35.5% complained difficulty in singing higher pitches. They also reported difficulty in reaching lower pitches, dryness of throat, and vocal fatigue in 31.1% of singers. Meanwhile, discomfort and pain while singing were reported in 26.7% of singer while difficulty in sustaining voice for a long duration and "throat tightness and strain" while singing were reported in 22.2% of singers. Also, singing frequency range (in Semitones) was found to be reduced in singers across clinical diagnosis. A study on teachers (Sudhakar and Savitri, 2010) on 12 female primary school teachers and found that at the beginning of class fundamental frequency of phonation was 190Hz and it rose to 208 Hz at the end of the class. It dropped to 193 Hz after the voice rest. The jitter value was 0.53% at the beginning which increased to 0.73% at the end and after the voice rest it dropped to 0.47%. Simmer value was 10.41% at the beginning which increased to 12.7% after teaching and value decreased to 10.01% after voice rest. Harmonics-to-noise ratio was 13.36dB before starting of the teaching day which increased to 14.48dB at the end. After voice rest it decreased to 13.02 dB. Fundamental frequency of speech is 203Hz at the beginning and it rose to 210Hz at the end of the day. After voice rest sF0 dropped to 202 Hz. It can be concluded that the acoustic voice parameters

(except HNR) are sensitive enough to document the short term effect of teaching in voice (Sudhakar and Savitri, 2010).

AIM

The current focus of this project is to find out effect of theyyam art form on the voice quality of the artist. It can also provide a better understanding on variances of vocal measures when compared with healthy counterparts.

NEED

This study would aid voice professionals to deal with these performers with their management strategies. This would also promote the extent of deficiency and deviancy of voice parameters in them

METHOD

Sample size of 30 was considered for the study with the help of statistical equation. The voice characteristics of the subjects were recorded using PRAAT software. The tools included in the study were detailed case history with voice proforma along with inclusion of PRAAT software. The voice parameters included for the study are Jitter percentage (J%) to measure vocal stability, Shimmer (Sh %) to measure micro-instability of vocal cord vibrations. PRAAT is a .freely available software developed by Paul Boersma along with David Weenink from the University of Amsterdam. The data was collected from in around Kasaragod District in Kerala. The obtained data was statistically analysed using paired t test by SPSS 16.0 for Windows (SPSS Corporation, Chicago, IL).

RESULT & DISCUSSION

The study was statistically evaluated using SPSS software. The data was collected and tabulated using statistical equation and with the help of statistical software. Table 1 depicts values of jitter and shimmer for Theyyam participants and healthy individuals.

Table 1 : Comparison of jitter and shimmer between theyyam artist and normal

JITTER		SHIMMER	
THEYYAM	NORMALS	THEYYAM	NORMAL
0.17	0.40	2.13	2.01
0.27	0.212	2.37	2.11
0.37	0.26	1.89	1.93
0.31	0.73	2.45	2.67

0.23	0.65	1.89	1.45
0.38	0.45	2.01	1.22
0.67	0.76	1.69	2.67
0.58	0.36	2.34	1.45
0.55	0.801	2.76	1.92
0.45	0.17	1.78	2.01
0.12	0.2	2.34	2.11
0.23	0.2	2.67	1.87
0.7	0.38	2.79	2.36
0.13	0.4	1.02	2.11
0.89	0.23	1.67	2.52
0.54	0.29	1.78	2.37
0.47	0.18	2.35	1.44
0.43	0.18	2.36	2.62
0.54	1	2.35	2.76
0.57	0.37	1.34	2.55
0.47	0.78	1.89	2.29
0.78	0.24	1.98	1.39
0.35	0.81	1.46	1.54
0.32	0.27	1.89	2.06
0.4	0.24	2.11	1.92
0.98	0.4	2.98	2.38
0.46	0.76	2.14	1.83
0.87	0.3	2.15	1.41
0.68	0.39	2.14	2.67
0.56	0.2	2.87	2.07

Analysis revealed that there is no statistical significant difference $p >= 0.05$ between the jitter (mean value of 0.048) in theyyam artists and normal with mean of 0.042. Also, Shimmer (mean value 2.11) in artists and mean of 2.05 in normals. This study is in accordance with previous studies well described by numerous researchers. A study conducted (Sundberg, Cleveland, Stone & Iwarsson, 1999) on voice source characteristics in six singers for which results showed that the closed quotient varied steadily with vocal loudness and glottal compliance decrease with the increase in fundamental frequency but remained unchanged by vocal loudness, conducted a study. Meanwhile Hazlett, Duffy & Moorhead (2011) performed a study to review the impact of voice training on the vocal quality of professional voice users showed that voice preparation significantly improved no less than one voice-related measurement from the several investigated from baseline. However, Pathan and Rajani (2017) found that the connected speech sample, which may show valuable, changes in voice production in vocal professionals. A study conducted (Bovo, Galceran, Petrucci, & Hatzopoulos, 2007) on two hundred and sixty-four subjects, mainly kindergarten and primary school teachers. (Bovo, Galceran, Petrucci, & Hatzopoulos 2007). Similarly, a study was conducted to compare the mean speaking fundamental frequency (SFF), mean speaking intensity, and speaking frequency range for a group of trained male singers and age-matched nonsingers in three age ranges. The mean SFF of the nonsingers was comparatively lower among the middle-aged speakers than of the young or elderly subjects (Morris, Brown, Hicks & Howell, 1995). This study also revealed that elderly nonsingers had frequency range less than other groups. Whereas, nonsingers used higher speech intensity than other groups in the study. Burns (1986) conducted an acoustical analysis of the speaking and singing voices of two types of professional singers shows that Country and western singers revealed similar resonatory voice character for both spoken and sung output.

The present study could have been well illustrated if adequate research documentation on theyyam participants were available. Even after adequate literature search, no much data was available. This would probably add as a limitation.

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